

Railway Age

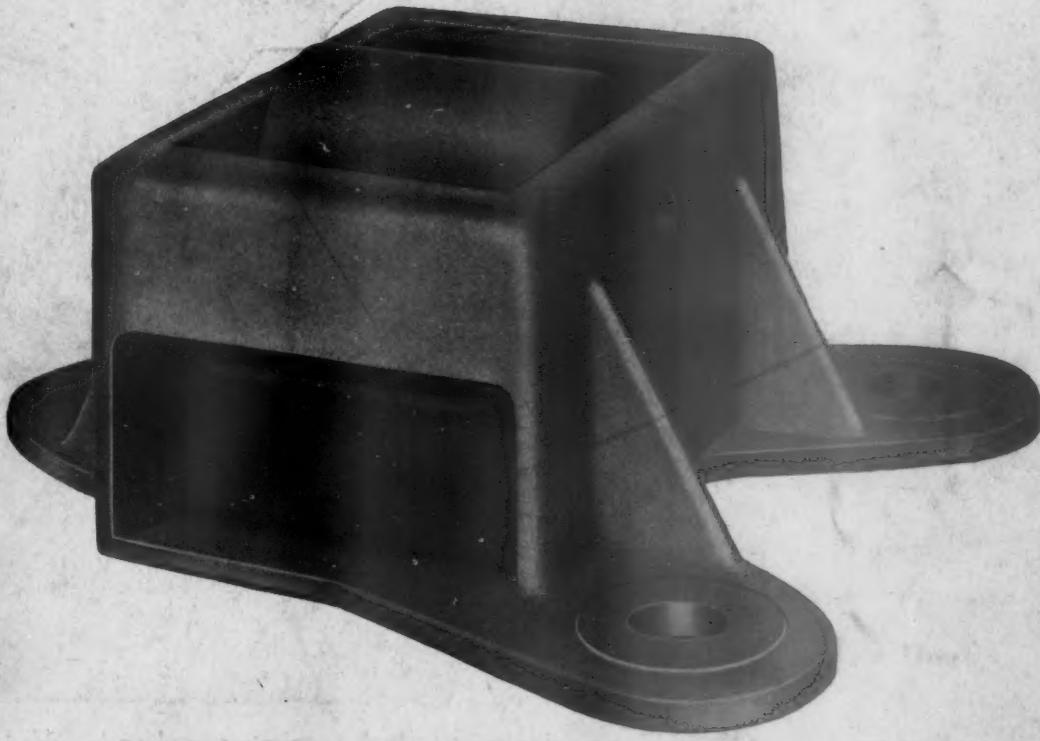
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SIXTY-FIFTH YEAR

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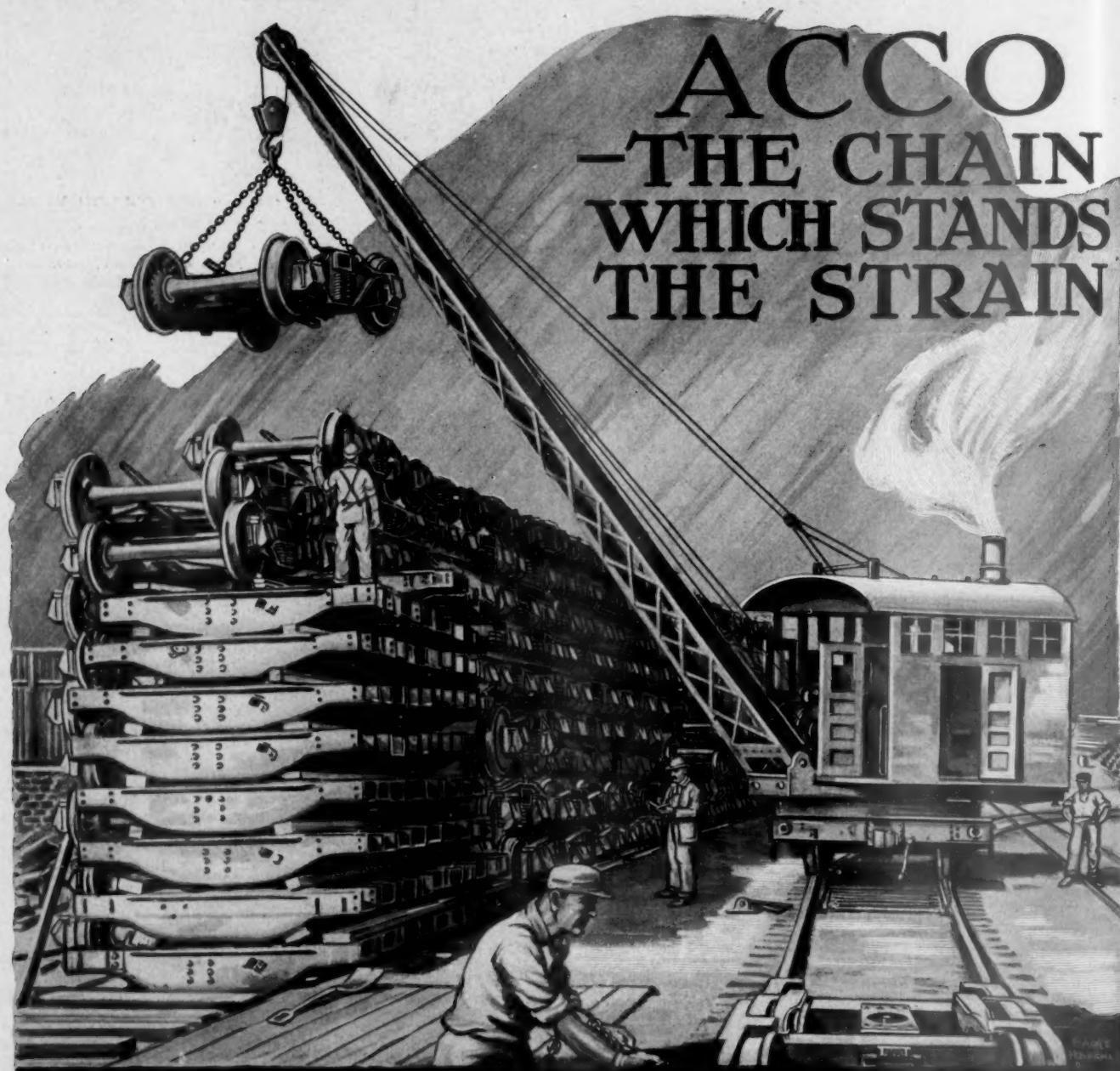
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EDITORIAL

Railway Age

EDITORIAL

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Warren S. Stone, grand chief of the Brotherhood of Locomotive Engineers and president of the Plumb Plan League,

The Unfinished Picture has furnished us with another use for the story told by Senator Frelinghuysen in his address at the Railway Business Association dinner. Mr. Stone, in a speech before the Cleveland Chamber

of Commerce said that "the so-called Plumb plan received its name from Wall Street," and that the name was adopted by its sponsors in order to retain the benefit of the very valuable free advertising it had received. "When you think of it," Mr. Stone said, "forget it is called the Plumb plan. Think of it as your plan, and if you want to go a little further, call it God's plan, because we really think it is that." Senator Frelinghuysen's boy artist, who said he was drawing a picture of God, was not discouraged when told that no one knows what God looks like, because, he said, "They will know when I finish this picture." Mr. Stone and Mr. Plumb failed to explain the divine origin of the plan when they were advocating the Plumb plan bill, which Representative Thetus W. Sims introduced in Congress last summer. We are not certain whether any explanation they might have made would have got the bill out of the committee, but they might have prevented Mr. Sims from introducing so many later bills with different plans for the disposition of the railroads. Mr. Plumb gave the House Committee a glowing verbal picture of his plan, but it seems that some one omitted to supply the halo.

The *Railway Age* presents in this issue the first of two articles by Robert E. Thayer, its European editor, on economic

Conditions in Germany conditions in Germany. Mr. Thayer has written these articles on the basis of his own observations on a trip into Germany. The first article deals with

the economic conditions in Germany as a whole; the second will deal entirely with the railway situation there. Economic conditions in Germany are indeed in a bad way. Disorganization is the best word to use in characterizing the situation. Let alone the fact that the value of the mark is so low that everything in which the matter of money enters is set away, there is a lassitude on the part of labor, a severe shortage of coal and other raw materials, a feeling of hopelessness and a sullen attitude towards the rest of the world that bodes no good for anyone. It is pitiful to see how the German is inclined to blame the low value of the mark on the Allies, who he thinks are trying to keep it down so as to handicap his country's recovery. The particularly "fermented state" of labor does not look well for the future; in some of the railroad shops the output per man became so small that the shops had to be closed for a time entirely. The shortage of materials, combined with the shortage of coal, only adds to what already seem insurmountable difficulties. It would appear that Germany is certainly being punished for becoming an outlaw nation and that it has a long way to go morally and physically before it can again take its place as one of the leading industrial nations of the world.

According to the first annual budget submitted to the Canadian House of Commons by J. D. Reid, minister of railways,

Regulation by Subsidized Competition the Canadian National Railways operated at a loss of \$14,000,000 during the fiscal year ending June 31, 1919. In commenting on this result, Dr. Reid declined to be placed on record as favoring or opposing an increase in rates sufficient to wipe out the disproportionate relation between earnings and expenses. No doubt a rate increase will be unpopular. The people of Canada probably prefer to pay for transportation in their taxes, where, like the price of the salesman's suit in the expense account, it "is there, but you can't see it." Were all the railways in Canada publicly owned our comment would end here, but the Canadian Pacific is still in private hands and must, of necessity, operate under the same rate structure that applies to the national lines which are virtually subsidized to the extent of the annual deficit. Therefore, except as the Canadian Pacific may have been more conservatively financed and more favorably located and is being more efficiently operated than the government lines, any deficit on the national lines paid out of the treasury is reflected by a proportionate loss to the Canadian Pacific which must come—not out of public funds but from the pockets of the stockholders.

While it is perhaps rather early to say definitely as to the final solution of the railway problem in Great Britain, one

The Future of England's Railroads may hazard a fairly good guess on the strength of the address of Sir Eric Geddes, England's Minister of Transport, before the opening meeting of

the Institute of Transport, an abstract of which appears in this issue. During the time the Transport Bill was being considered in Parliament, the labor constituency indicated very strongly that it was working towards ultimate nationalization of the roads. The administration on the other hand very adroitly dodged the question of nationalization and the Ministry of Transport was formed with nationalization remaining an open question. At that time the British nation was not in a position to consider nationalization safely and without bias, for the labor element was not in a sufficiently quiescent or reasonable state of mind. Since the Transport Bill was passed, however, there has been a railroad strike, there has been a molders' strike, and the British nation has weathered what appeared a year ago to be a severe industrial storm. At present there seems to be a clearer understanding between labor and the government, as a result of the experiences of the past months in regard to the question of state ownership and private ownership which is of a much more rational tendency.

While Sir Eric in his address does not attempt to discuss the "pros" and "cons" of nationalization of England's transport systems, he points out the conditions under which other nations have nationalized their railway systems and shows that in every case the situation was one of practical expediency rather than a result of theoretical study. His comments indicate a certain degree of approval on the action the

United States has taken in the settlement of its railway problems. He advocates more governmental control over railways than has ever before existed in Great Britain and states quite clearly his reasons for this position. By taking his utterances as representative of the government's attitude and by taking the attitude of labor as it appears today, one would seem justified in prophesying for the railways of Great Britain an arrangement similar to that which now exists in the United States with perhaps a governmental body of greater power in the dictation of operating policies than is even now reposed in the Interstate Commerce Commission.

A Test of Fairness

ONE OF THE MOST complicated problems confronting the government in closing up its accounts with the roads covering the period of federal control is that of determining the amount of deferred expenditures for maintenance of way for which compensation should be made. That there has been deferred maintenance on the properties as a whole, no one familiar with the situation will deny. The shortages of rails and of ties are indicative of that. That these deficiencies apply to nearly all roads is equally certain. The problem is to determine their amount.

The determination of the amounts which the government owes the roads for deferred maintenance is essentially an engineering rather than a legal problem, involving a comparison of the units of work and of materials expended during the twenty-six months of federal control with those which should have been expended under normal conditions, with similar traffic and climatic conditions. In order to protect itself against over-expenditures the government took precautions early in 1919 to restrict the maintenance program to the point that it would be smaller than those of the test-period years. More recently counter claims for over-expenditures have been filed in some instances, presumably for trading purposes in the final settlement and to insure that no payments are made in excess of those which the final negotiations will show are due the roads.

In many details the determination of the amounts of the deficiencies can be ascertained readily, as in the renewal of rails and of ties. In others, such as track-laying and surfacing, various influences, such as the density of traffic, weather conditions, etc., introduce elements of uncertainty which call for the exercise of mature judgment. In one respect particularly, large deficiencies have accrued which are difficult to evaluate. This relates to the operating charges incident to a large part of the routine betterment work normally undertaken from year to year. In the routine operation of the roads large expenditures are necessarily made for a wide variety of improvements, the cost of which is divided between capital account and operating charges, according to rules laid down by the Interstate Commerce Commission. During the war, work of this character was necessarily deferred, and the government continued this policy during 1919. There has, therefore, been an almost complete cessation of the routine betterment work for two years. In the meantime the demands of traffic have steadily increased, and the work which was not done during 1918 and 1919 has not been abandoned but simply deferred. Now that the roads are back in the hands of their owners it is necessary that this accumulation of deferred improvement work be cleared away and the operating portions of these charges which should normally have come out of 1918 and 1919 revenues, and therefore have been included in the government guarantee, are thrown into the expenditures for later years. To this extent the roads have valid claims for further deferred maintenance.

In conducting these negotiations the representatives must approach the problem with a desire to arrive at a result fair

to both parties, if justice is to be done. Because of the lack of definite measures neither party can assume a position which the other cannot assail successfully. The conditions of the situation demand a broad-gage attitude by the representatives of the government and the roads, devoid of quibbling, so that the question can be brought to an early and fair decision.

The Railroads and the Labor Problem

THE PRESENCE OF A LABOR PROBLEM is neither new nor novel for the railroads. Nor is it confined to any one department of the service. Every officer is facing it in one form or another, but certain branches are confronted with it in more serious form than others.

The labor problem is particularly acute in the maintenance of way department because of the class of men employed for most of the work. While efficiency in the conduct of track work requires experience, and this work is therefore skilled, this fact is not in general recognized by the roads today, who hire men regardless of experience and pay uniform rates to experienced and inexperienced alike. The result is that the greater part of this labor, other than that drawn from the small communities along the lines, is recruited in the large centers in most active competition with other industries. In such competition the roads always have and will probably continue to secure only the more inferior labor.

The railways are now confronted with a tremendous amount of work—the provision of additional facilities and the taking up of the deferred maintenance of the last two or three years are pressing. It is already evident at the beginning of the season that the supply of labor is to be the limiting factor in the amount of work which can and will be done. It is, therefore, essential that every effort be made to utilize most efficiently these men which are available.

Under government control a number of new relations in the handling of maintenance of way labor were introduced—the maintenance of way forces were thoroughly organized, uniform wage rates and working conditions were established, and the eight-hour day was made effective. While these developments were applied officially only to the roads operated by the United States Railroad Administration, in actual practice they were effective on all of the roads of the United States, and of Canada as well. The conditions are therefore universal. The result of these developments is that the output of work is curtailed materially at a time when an increase is so greatly needed.

The great danger of the present situation lies in the possibility of the roads engaging in destructive competition with each other for men—a practice not unknown in pre-war days. At present, when the automobile and other industries can and will continue to pay more than the roads for these men, since they can immediately transfer any increase in cost of labor into the selling price of the finished product, the amount of labor which the roads can secure is more or less fixed. As a result any increase in wages above the prevailing market price will not bring any new labor to the railways but will only draw it from one road to another. The general bidding of one road against another in this way will only demoralize the forces already at hand and will decrease rather than increase the amount of work on the roads as a whole. It is to be hoped that the managements will see the folly of wasteful competition of this character and will curb the tendencies in this direction which are already appearing in certain quarters.

Another tendency to which attention may well be called is that of contracting maintenance of way work on a cost plus basis. This practice was developed successfully on certain roads before the advent of federal control, as a result of which it was possible to effect certain economies because of the more effective supervision and direction which the smaller organi-

zation of the contractor made possible. However, within the last two or three years this plan has been resorted to in numerous instances as a subterfuge for the paying of higher wages in certain localities, a contractor frequently employing the same forces which had been on the road. The demoralizing effect of such an expedient is self-evident.

The labor situation which the roads are now facing is so serious that it warrants the best united action of all, not for the purpose of restricting wages below the fair market rate, but to curb the action of individual roads so that the interests of all may be promoted. Unless sound judgment prevails, the ill-advised action of one road, prompted by a desire for a temporary advantage for itself, may demoralize the situation for all. The next sixty days will constitute a severe test on whatever methods that may be employed.

The Calling-on or Slow Speed Signal

THE CALLING-ON SIGNAL at interlocking plants has figured in two accidents, reports of which appeared on page 637 of the *Railway Age* of February 27 and on page 970 of the issue of March 19. In one case one of the contributing causes of the accident was that the calling-on signal had been left in the 45-deg. position after having been placed in that position for a previous train instead of having been returned to the "stop" position after the passage of the train for which it was cleared. In the case of the accident at Walton, Va., the report of the Bureau of Safety censures the operator for exercising poor judgment in using the signal. The fireman, in the course of the investigation, was also found to have had a wrong conception of the meaning of the permissive indication of the calling-on signal, as he thought this signal in the 45-deg. position and displaying a yellow light was to be read the same as an automatic block signal displaying a yellow light, which indicates that the block ahead is clear, but to approach the next signal prepared to stop. *The indication of a calling-on on arm does not confer this right.* This raises the question as to whether proper instructions have been issued to levermen, enginemen and others who may have occasion to use or to operate trains by the indication of a calling-on signal.

The use of this signal at interlocking plants is a comparatively recent development, brought about by the desirability of facilitating traffic across interlocking plants where for any reason the higher home signal interlocking arms cannot be given because of the presence of another train in the block, or from other causes. It appears that different instructions governing the use of the calling-on signal are in force on different railroads. Under the interlocking rules of the Standard Code, 601G shows a typical aspect which indicates that the "route is set; track may or may not be occupied." In some cases an engineman is required to stop before accepting the calling-on indication, but this defeats one of the purposes for which it was installed, which is to permit slow movements to be made without actually stopping heavy tonnage trains. In general, the rules specify that trains accepting such slow speed signals must proceed at slow speed prepared to stop short of train or obstruction and that signalmen must not use the slow speed signal when the main or diverging route signals can be cleared.

The more or less general impression which seems to prevail—that this signal when in the 45-deg. position and displaying a yellow light confers the same rights as does an automatic signal giving the same indication—should be corrected by proper instructions. It should be emphasized that a calling-on signal *does not confer rights through a block but simply indicates that the straight or the diverging routes are set up properly;* it is of the utmost importance that enginemen, signalmen and others recognize that the calling-on arm is an *emergency signal* to be used only as such.

Discipline for Train Safety

THE LETTER on block signaling which is printed in another column sets forth some beautiful theories; but the proof of the pudding is in the eating. We do seem to ignore—or to conduct a good deal of discussion oblivious to—the importance of having good discipline *with* good machinery, and it is well to look back once in a while; but perfection, like liberty, is not to be attained without eternal vigilance. Engineers and tail-end men *can* be educated; the question is, have we the resources, energy and persistent courage to do it?

It is easy to agree with our correspondent's main points. The present plan of train protection is a loose combination which everybody would like to see improved. Whistles and torpedoes are often used carelessly, and they are a noise-nuisance even when used carefully. The most comprehensive improvement now in sight is the automatic stop; and the signal engineer of the Interborough, a man of long experience with such devices, says that we can perfect it. At the same time it is to be admitted that the stop would depend on the track relay; and the only way that the conductor of a train can be sure that the track relay has acted to protect the rear of his train is to get positive evidence of the fact every time he passes a protection point. There would not be much difficulty in making each stop-signal record itself in the rear car of every train; but the crucial point would be met in the arrangements to have this record watched. What we are trying to do is not only to supplant the flagman and the delays and uncertainties inseparable from the flagging system, but to protect from collision trains following one another only two minutes apart (which the flagman could not do); and to do it as well on curves and through dense fogs as in easier conditions.

Bearing in mind that all mechanical devices conceived by human beings are subject to failure, we must admit that to get real satisfaction out of this rear-end recording-machine protection there must be a reliable man to read the record on the machine immediately on entering every block. Can the best trainman—let alone the average trainman—be schooled to do this effectively? Ask your trainmasters about this? To get the fireman to check the engineman's vision and vigilance every mile, or even every two miles, is a problem that has not yet been solved with satisfaction; would a similar problem with the rear brakeman be any easier? Much money has been wasted by railroad companies in the installation of machinery the usefulness of which was neutralized or wholly lost by lack of care in its operation. Here is a point where the lessons of such losses should be heeded. The experiment of having the rear trainman keep a record of every signal that he passes has been tried, and that kind of safeguard is by no means impossible or unreasonable; but it would be folly to inaugurate such a scheme unless it were to be carried out with vigor and thoroughness.

The argument for better discipline on the locomotive presents essentially the same problem. An audible signal would make the engineman vigilant (assuming him to be alive and in his senses) and could readily be made to compel coincident attention by two men, or even three (including a man in a car behind the engine); it could give proceed as well as cautionary indications and, in that way, failures of apparatus could be made so infrequent as to obviate danger from that source; and an apparatus entirely unconnected with the brakes would be free from the perplexities and costliness of speed control or reduction of track capacity; but the question would still remain: How fully should we utilize the benefits of this theoretically perfect scheme for 100 per cent efficiency? Such a scheme on 100,000 miles of railroad would prevent a collision once in, say, ten years; on how many occasions in that length of time would the scheme be "out of commission" because of failure of enginemen, or firemen, or trainmasters, or maintainers, or master mechanics to do their part? We

do not mean forgetfulness, or blunders; but conscious, deliberate omission to keep the safeguards in working order.

Finally, the technical question must not be separated from the financial. As we have shown, the cab signal, though simpler than the train stop, is subject in some degree to the same economic limitations. There does seem to be a deadlock, as has been suggested; but this deadlock between the conservative railroad and the enthusiastic electrical engineer or inventor is no worse just now than the deadlock between the railroad and the government—that branch of the government which controls the railroads' income. The railroads of this country, at present, lack the money to introduce refinements, and everybody is waiting to see when and how they are going to get it. When they get even so much as the promise of it—a promise that will hold water—some breaking of deadlocks may be looked for.

Before Buying Equipment Consult the Mechanical Department

MANY ORDERS FOR CARS are now being placed, and with still heavier buying in prospect there is a tendency for roads that are short of equipment to rush into the market. As a result some railroad executives have placed orders without specifying the details of construction to be followed, leaving this to the judgment of the builders. Such a policy is apt to be very costly for the railroads as has been shown by past experience. Freight and passenger cars are not a standardized commodity and their purchase should not be a matter of bartering with a view to obtaining the equipment at the lowest price. Any difference in the first cost between a well constructed car and a poor car is negligible when compared with the differences in the cost of maintaining the cars, the length of time elapsing before they must be retired, and the percentage of time they are held out of service for repairs. The design of freight cars could safely be put in the builders' hands if the interests of the railroads and the builders were identical, but this is not the case. The builders are interested in securing a design that can be manufactured at a low cost; but they are not concerned with the cost of maintenance or the service life of the car.

In the past it was not uncommon for roads to request bids on cars of a certain type and capacity and naturally each builder designed the car that could be built most cheaply in his own shop. Oftentimes the successful bidder, knowing that the design did not possess sufficient strength, would try to arrange for a change before the cars were built. This "bargain counter" buying of freight cars has proved an expensive practice. One road that bought cars on this basis found a few years later that this weak equipment was out of service a large share of the time and was requiring a disproportionate amount of work on the repair track. An analysis of the situation disclosed that the cars had five major defects each of which cost from \$25 to \$300 to correct. The cars were finally rebuilt at a cost of about \$800 per car as the only means of keeping them in service. Numerous similar examples could be cited but this should suffice to show that executives make a serious mistake if they purchase equipment without having complete plans and specifications drawn up by the mechanical department.

LET THE RAILROADS MAKE MONEY. Let any railroad make big dividends if it can. It is not probable that the management of that railroad will settle back in the easy chair and let the profits flow in. No, the management will work itself to death to make the road bigger and stronger and serve the public better and earn more dividends, and get in more capital and earn yet more dividends. What the country needs most is larger transportation capacity.—*Lewiston (Me.) Sun.*

Letters to the Editor

Super-Refined Block Signaling

CAMBRIDGE, MASS.

TO THE EDITOR:

Your report of the meeting of the New York Railroad Club on March 19 gives a very good idea of what was said on that occasion, but you do not tell your readers what was not said—what was left out. As I sat there trying to estimate the spirit and motives of the various speakers, I wondered if we do not too carefully adhere to tradition and past experience; we are too anxious to stay on the ground; are afraid to soar above the clouds. Other meetings of the club, and of other railroad clubs, have started the same line of reflections. Instead of harping forever on the empirical data of the past why not follow more purely scientific lines? To explain what I mean I will pose as a scientist, if you will pardon my presumption, and ask a few questions concerning the matter of automatic train control.

Why must we always base our arguments on the records of casualties? From a strictly scientific standpoint our train service ought to be greatly improved if never a passenger had been killed. Under our present system, even where we have the best automatic block signals, the flagman is constantly in evidence. If a train stops for one minute a flagman has to go back, making a journey of one or two minutes, and then when the train is ready to start along the conductor spends about 30 seconds fixing up a signal to call in the flagman, and he spends a minute or two more in coming in; and the chances are that even then no torpedo has been put down, and complete safety is still lacking. The delay in blowing the whistle is annoying to passengers and exposes the slowness of the railroad mind; and the noise of the whistle annoys passengers and everybody else. Thus we see that the boasted scientific block signaling has a loophole; and this must be noticeable to passengers who are well enough informed to see the true situation.

Where torpedoes are used according to the rules to make up for the lack in the signal system the noise caused by them is a nuisance. The well-managed road is worse than the one that is poorly managed because the torpedo explosions are more numerous.

The flagman and the torpedo are necessary, mind you, not alone because the engineman of the following train may be careless but because the signal itself may give a false indication. In the Interborough and the Brooklyn Rapid Transit and the Hudson and Manhattan tunnels in New York we do indeed have a scientific system, and there is no flagman; but even here there is one loose thread—the possibility of a track relay sticking clear. These lines being comparatively straight, and their train-speeds being usually not over 45 miles an hour, and the block sections being short and of uniform length, they have never got into trouble in this direction; but the possibility is there, nevertheless. On the ordinary standard railroad, with longer block sections, with more numerous curves and other complications, the chance of a false clear signal must still be reckoned with. Nothing untoward may occur for five or even ten years; but the scientific signal man must have this point in mind. We read in the gospel of Luke, fifteenth chapter, that there is joy in the presence of the angels of God over one sinner that repenteeth more than over 90 and nine just persons who need no repentance; likewise there is more anguish among the signal department angels of our railroads over one false clear indication than over 999,999 perfect signal operations.

This is a point for scientific attention. None of the speak-

ers at this meeting made reference to it, although it is an element which is in everybody's mind.

The scientist aims to provide a signal system which will give absolute assurance that the signal behind the advancing train actually indicates stop; and if there is an automatic stopping apparatus that also should correspond to an occupied block. The Boston & Maine has for several years tried to cover this point by having the engineman see the automatic block signal go to the stop position just before he passed it; but this arrangement does not seem to satisfy the majority and it has not found general favor. Indeed, I understand that the Boston & Maine does not intend to maintain this arrangement forever.

The true and the simple way to assure the protection of a train at the rear is to have the trainman who is on the rear car record the indication of each signal as his train passes it. This can be done. Why has no one ever tried it? It is true that the average brakeman is lazy and that he will not keep this record except under strict discipline. It is to be admitted also that sometimes the presence of snow or smoke may prevent him from seeing a signal after his train has passed it. These two objections, however, can be met at a single stroke. The use of an automatic recording device in the rear car can be made an effective means of discipline, and the checking or actuating of this device by the roadside signal will get around the difficulty of smoke or snow or fog. The recent experiments of General Squier on the New York Central with Hertzian waves, guided by a wire, suggest that a roadside signal—every cautionary signal—can be made to produce a signal on the speed indicator in the train with simplicity and certainty and at moderate expense.

Each semaphore signal can readily be made to indicate in the rear car, on the movable tape of a speed recorder, whether it is displaying proceed, or stop, or caution. The apparatus would be locked in a glass-covered case where the trainman could see it; and he would be required to write his own record on passing each signal; and his record would have to agree, as to time, with the automatic record or his delay or neglect would be exposed. If the record shows that the signal indicates behind the train anything other than stop (which would mean probably that the automatic stop also was not properly functioning) he must at once throw off one or more fuses. This would be important, because with short block sections a following fast train may be so near that there would be no time for slackening speed and dropping off a flagman; or if he did drop off he would not have time to go back any distance. Of course, if the false clear signal remained clear it would deceive the following train also.

It would be desirable, of course, for the trainman to drop off torpedoes as well as fusees, but nobody has yet shown how to do this satisfactorily at high speed. A bag of torpedoes 10 ft. long and 6 in. in diameter might be so dropped as to fall across one or both rails; but I will refrain from going that far, as you have already, no doubt, classed me as visionary. However, I can stand that.

Whatever you do, or whatever you say, all must admit that no space interval system is complete as long as you trust in one machine, with no check, as your only means of preventing a fast train from running into the rear of another fast train. At present we depend on the flagman for the check, but with the certainty that he will fail us occasionally; and I might add that with trains running only three minutes apart these failures are liable to be of a kind for which the flagman cannot be held wholly responsible.

Having mentioned Hertzian waves, I will go a step farther. The scientist recognizes a stone wall when he sees it. That discussion at the meeting only concerns what we have seen in the public prints for months past; there is a deadlock. The progressives, typified by Mr. Sprague, backed by the government, call upon the railroads to proceed to develop the auto-

matic stop. The conservatives, represented by Mr. Felton, president of the Chicago Great Western, hold back; and for some very good reasons. The conservative side was not well represented at the meeting, but it was easy to read between the lines. When such a brilliant progressive as Major Ames takes the conservative side we shall do well to walk with circumspection. In the presence of this deadlock the thing to do is to turn again to the audible cab signal. The exclusive attention which has been given to automatic stops by American railroad men to the entire neglect of the cab signal is believed, no doubt, by those who are leaders in guiding public opinion in this matter to be real science; the cab signal is dependent on the alertness of the man in the cab, and we have got into the habit of saying that that is unscientific.

But, as I said before, the true scientist meets facts as he finds them. Making the locomotive runner truly reliable is not a hopeless problem as the automatic stop people are claiming. Mr. Waldron said that the automatic stops on the Interborough were significant as enforcers of discipline. It is by no means settled that the stop is the only means of enforcing discipline. Smash signals at draw bridges have done great things in this respect, although we never hear of their touching the locomotive. The late John T. Cade, back in 1913, proposed his audible roadside signal as a scheme for holding enginemen to vigilant observance of signals, the practicability of which no one will deny. The only obstacles to his scheme were the cost and the entrenched conservatism of American railroad officers. If we can keep both the fireman and the engineman awake and alert we cover all reasonable contingencies, except the death of both of these men, and even in that case it is easy to take in the baggageman as a third person. In short, a cab signal properly managed gives reality to the monitorship of the fireman, a safeguard which ostensibly we have had in operation for many years past.

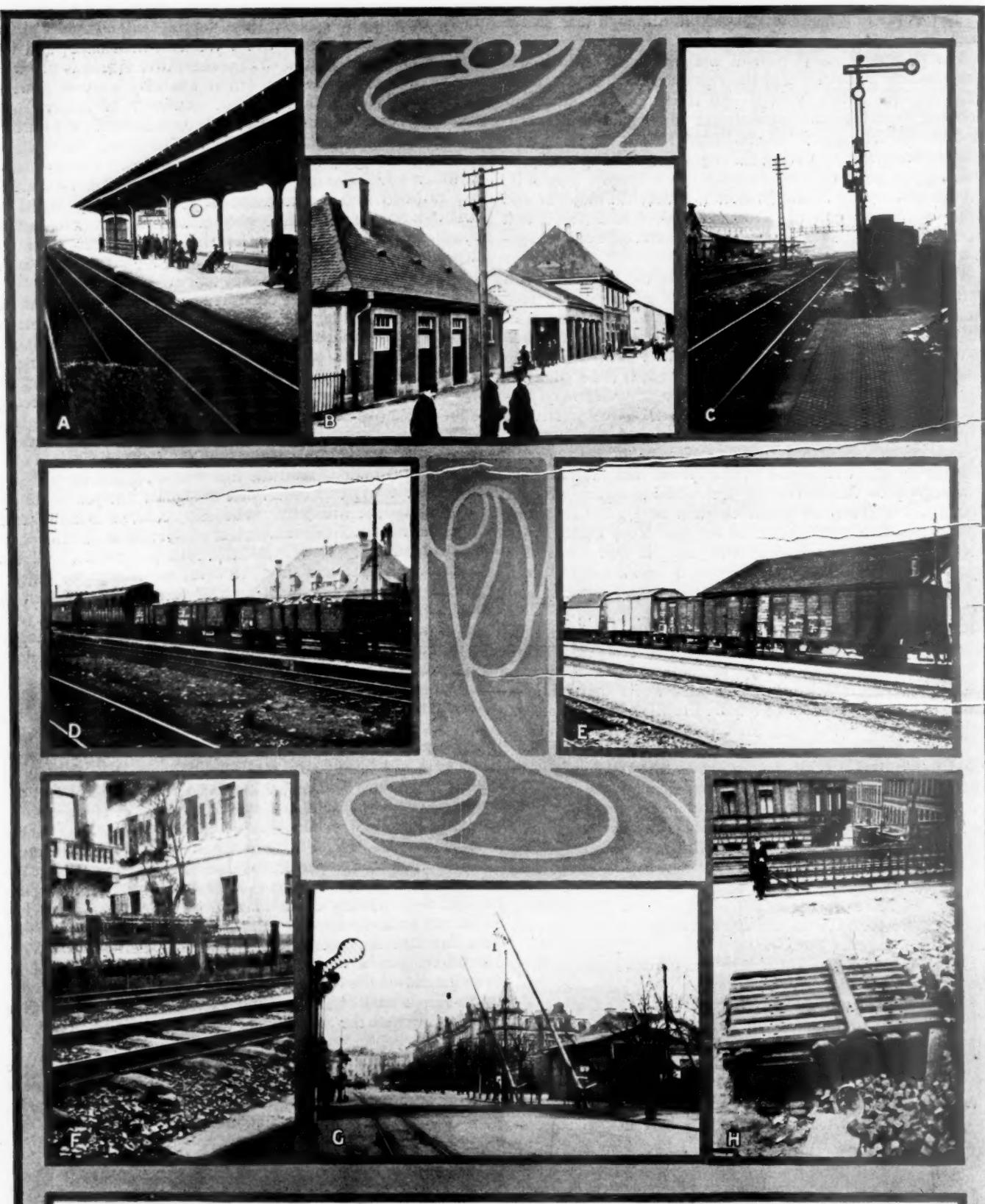
The recent experiments of General Squier (*Railway Age*, March 12) are enough to give all necessary assurance that a cab signal can be readily devised. His wireless apparatus does away with all trouble about clearances. It is capable, no doubt, of working both a cab signal and a recorder such as I have suggested in the rear car. To those who say that the cultivation of vigilance to a satisfactory degree is impossible, I reply that this problem has never yet been tackled on the ordinary railroad with suitable vigor. It is the proper function of a scientist to perfect the discipline of enginemen. We have to have in cabs men of good brains to meet other responsibilities—running down long grades, deciding when lost time can be made up with safety, etc., to say nothing of using the fire and the water with safety and intelligence. Why, therefore, should we not train him to an efficiency where we can get rid of the bugbear of automatic stops and speed control, ramps and clearances and excessive costs, countrywide uniformity and the other things which are holding everybody back?

The automatic stop is a beautiful ideal, and so is the League of Nations; but both of these idealistic proposals are having such very hard sledding that it is time that somebody, somewhere, starts out on a new tack.

JOHN C. HOWARD.

IT IS TIME FOR THE SHIPPERS to recognize that the service of the railways belongs to them, as much as the bond interest belongs to those who have furnished the money for betterments. The stoppage of the flow of funds into railway investments and the turning of railway earnings into wages is not for the advantage of the service of shippers. The growth of the railways has stopped and the growth of the country has increased. The railways are about at the limit of their efficiency, and the country must make up its mind to get along with less railway service or impose an alternative on those who talk and talk and do nothing.

—*New York Times.*



A—Typical Platform and Shelter at German Stations

B—A Typical Way Station on the Prussian-Hessian System

C—Dusseldorf Station Approach Showing Signals and an Untidy Yard

D—German Steel and Wooden Open Top Freight Cars

E—German Box Car Equipment

F—Rail Joint on Steel Ties: In Some Cases a Special Double Tie is Used at the Joints

G—Railway Crossing Gates. These are Operated by Levers in the Shelter at the Right. The Signal at the Left is for the Street Railway

H—A Pile of Steel Ties at Essen

Germany's Economic Position as a World Nation*

Labor Insurgency and a Weak Government Have Made Its Industry and the Railroads Impotent

By Robert E. Thayer
European Editor of the *Railway Age*.

Part I—General Conditions

MARCH 19, 1920.

GERMANY TODAY is in worse condition economically and politically than any of the other nations that participated in the war with the exception of Russia. Regardless of the fact that no part of its territory suffered the devastation of battle, it is reaping the harvest from the seeds it sowed on that fateful day in the summer of 1914. Disorganization, discontent and a feeling of hopelessness foreign to German traditions pervades the entire country to so great an extent as to belie those traditions. The system and organization for which Germany was so well noted before the war was based on one foundation—militarism—with no guy wires to support it in case that foundation failed. As a result Germany today presents a decidedly disconsolate picture—a nation divided by widely conflicting interests which recent developments have indicated there is not much hope of uniting. Germany will be slow in recovering its standing as one of the principal nations of the world until a stable, sound and honest government is established. But that government will not be controlled by the militaristic party for the people are done with it.

The Value of the Mark

It was extremely interesting to talk with the Germans on their home ground. No matter how hard one tries to avoid discussing the recent conflict, the German, particularly the North German, will invariably work the conversation around to that subject. They are very free to admit that they lost the war and with that acknowledgment they seem to think that it should be written off the books. Their greatest complaint now is the "valuta" or the value of the mark as compared with foreign monies—and that cuts them to the "quick." In all cases the impression prevails that the low value of the mark is purely artificial and is due to a pre-meditated determination upon the part of their former enemies to crush Germany economically. They forget that the Allied nations now have so great an investment in Germany through their indemnities that it is not for the best interests of the Allies to bankrupt the nation.

Laws have been passed which all Germans take a particular delight to enforce; they are to the effect that foreigners shall be charged anywhere from 300 to 500 per cent above the quoted prices for their purchases. Even in the hotels the price of accommodation is based upon the guest's nationality. Booksellers and merchants of all descriptions inflate their prices to foreigners. In one case one ardent "Junker" went so far as to charge the normal rate of exchange for his products, but needless to say no purchase was made.

In discussing the low value of the mark the German points to Switzerland, Holland and other small countries which "are not nearly so able and progressive countries as Germany" as an example of how absurd it is that the German mark should have such a low value. They absolutely overlook the fact that unlimited quantities of paper money have

been issued by the German government and that all nations on the earth have little confidence in that country today. As a matter of fact money means nothing in Germany. Contracts are absolutely worthless. Arrangements may be made today for the purchase of materials at certain prices with delivery three or six months hence, but at the time of delivery the price is subject to a revision both by the manufacturer and by the government which places a tax on all exports based on the rate of exchange at the time of export.

The German's argument for this is that they do not want to be accused of "dumping," but the real reason is they seek retaliation for the low value of the mark and they also want to prevent foreigners from buying them out. There is much to be said on this last point. Before the Germans raised their prices to foreigners and the government export tax was put into effect, merchants from all over the world flocked to Germany to procure materials in order to benefit by the low rate of exchange, and Germany was in danger of being gutted. In one particular case, a Swedish merchant went to Germany for bicycles. The manufacturers had agreed among themselves not to sell at the prevailing rate of exchange, but this enterprising merchant went from town to town, bought his requirements at retail, shipped them to Sweden and realized a wonderful profit. In another case a merchant desired to send out thousands of circulars. He brought them to Germany and mailed them from there to save on the postage.

This condition of affairs makes it quite difficult to contract with German firms at the present time. Even in the country itself difficulty is found in trading. Manufacturers will demand premiums ranging anywhere from 50 to 100 per cent for their products for prompt delivery, part of this premium to be paid in food or clothing for their workmen and the other part in the currency of some foreign country which they may choose to name. This last is for the purpose of establishing credits in those countries.

Germany's Position as Regards Basic Products

No more illustrative picture of Germany's condition can be obtained by a brief study of its position as regards raw materials. Primarily, as in every other country in Europe, Germany's industry is limited by coal.

The Coal Supply

All over the country coal is mentioned as the limiting factor. In the year 1913, the production of coal in Germany was 175,000,000 tons. Under the peace treaty Germany has lost about 35 per cent of its coal producing territory, Alsace-Lorraine and the Saar regions with 16,000,000 tons, Upper Silesia with 41,000,000 tons, and the occupied territory with 3,000,000 tons. In addition to this, Germany must, under the terms of the peace treaty, deliver from 31,000,000 to 39,000,000 tons of coal each year to the Allies.

The coal miners under the new régime in Germany have a seven-hour day, but in view of the present crisis, they have agreed to work two half shifts extra each week at double pay, thus making a 49-hour week. The grade of

*This article is written from observations made on a recent trip into Germany by Mr. Thayer. It will appear in two parts. That part dealing more particularly with railroads will appear in next week's issue. In the article no attempt has been made to convert the German marks into dollars because of the varying rates of exchange, a mark now being worth only 1.44 cents as compared with 23.8 cents before the war.

coal is greatly inferior to what it was before the war. In keeping with everything else the prices have risen tremendously. Families are rationed to one-quarter of a ton of fuel until the next supply is received, which will probably come next summer. Of this three-fifths can be obtained in coal and coke and two-fifths in wood and peat. Household coal is selling now at 350 marks a ton. Coke three months ago was 170 marks a ton and now it is selling for 370 marks. Fire-wood for household use is 280 marks a ton. Similarly, bunker coal has risen greatly in price, being sold for 300 marks. Railway coal is being purchased for 200 marks a ton, the price being lower in this case because of the quantity purchased.

The scarcity of coal has made it necessary to ration the entire country and some of the "luxury" industries are excluded from the ration list entirely. An interesting incident in this respect is that of one "luxury" manufacturer who absolutely had to have coal to the extent that he found it expedient to import coal from the United States at a price of 4,200 marks a ton. Germany is further limited from furnishing coal for home consumption by the contract which it has entered into with France. An arrangement has been made whereby France is to exchange 8,125 tons of iron-ore a day for 6,500 tons of coal from Germany.

A very interesting side light on the condition in Germany is illustrated in the way the coal rationing is handled. The hotels in Germany are particularly well heated and, in fact, uncomfortably so and upon inquiry it was learned that it was an easy matter for those with money to purchase all the coal they desired, regardless of the governmental restrictions.

The Iron and Steel Industry

The principal industry in Germany before the war was iron and steel. With the territory which Germany has lost went 72.1 per cent of her ore fields and a very large proportion of her pig iron and steel manufacturing facilities. Her production of pig iron decreased from 19,309,000 metric



Railway Station at Essen

tons in 1913 to 6,292,537 metric tons in 1919. Her steel ingot production decreased from 18,953,000 metric tons in 1913 to 7,768,569 metric tons in 1919. There was a smaller decrease in the production of ingot steel than in the production of pig iron, due to the fact that in 1919, and in fact throughout the war, steel was made with an increased use of scrap.

The theoretical capacity of steel production within the present German boundaries is from 12,000,000 to 14,000,000 tons per year, but on account of the lack of coal received, the shortage of ore and general labor conditions, it is impossible to obtain a production of more than 7,000,000 or 8,000,000 tons. During 1919, Germany imported iron ore from Sweden to the amount of 8,000,000 tons, but on account

of the great difference in the rate of exchange such importations are greatly restricted, for, as it has been estimated, Germany now owes Sweden 2,500,000,000 marks.

In addition to this the freight charges on iron ore have greatly increased, particularly for the Germans with the present low value of the mark. Before the war, iron ore was brought from Rotterdam to the German steel district in the vicinity of Dusseldorf by barges for 50 pfennigs a ton. The price today is 75 marks—an increase of 15,000 per cent! Transportation facilities via this route are in the hands of the Dutch.

The Labor Situation

The labor situation in Germany also has a very direct bearing on an extent to which Germany will recover. At the time of the revolution in January of this year, labor all over



Home of the Inter-Allied Railway Commission at Weisbaden

the country was in a particularly fermented state. It has been estimated that, regardless of the great increase in wages, the output per man has decreased to 30 to 20 per cent of the prewar standard. The eight-hour day is universal throughout the country. Where two shifts are used the men usually work from six in the morning till two in the afternoon, with but a short time for lunch, and from two in the afternoon until ten at night. On the railways it was found necessary to close some of the shops absolutely and abandon all work, the productive labor of the men being practically nil. The shops were reopened a short time later and those men who would work taken on under a definite contract. In one railway shop the pattern makers were found spending most of their time during working hours making toys, which they sold in the street in their off hours. The labor unions, which are now strong in Germany, are constantly preaching to the men, "work less and provide labor for all."

The wages of the workmen have increased from six to seven times their prewar rates. Metal workers in March, 1914, earned 5.54 marks a day on an average; today they are receiving 35 marks. Car repairers receive 4 marks an hour and work piece work, as compared with 60 pfennigs before the war. Shipbuilders receive 3.50 marks an hour, as against 50 pfennigs before the war. In some localities the employers are strongly organized. In the case of the Berlin district, founders are able to obtain help for from 4 to 4½ marks an hour, whereas moulders in other parts of the country are obtaining 5 marks an hour.

Cost of Materials

The great decrease in output of the men, coupled with a large increase in wages, naturally has a tremendous effect on the price of materials. Boiler plate at one of the large locomotive manufacturing plants costs 4,000 marks a ton—

when they can get it. Basic pig iron prices have increased from 60.56 marks a ton at the beginning of 1914 to 2,227 marks on March 1, 1920. Billets have increased from 100 marks in January, 1914, to 2,290 marks at the present time. The price of plates has increased from 103.50 marks in January, 1914, to 3,435 marks per ton at present. Acid bessemer rails have increased from 118 marks in January, 1914, to 2,800 marks in March, 1920. The price of ordinary finished steel has increased in a like proportion, but in this case, where the demand is so great, high premiums are being demanded. These premiums vary; in some cases money is required, in other cases scrap is required and in still further cases credits on countries outside of Germany, as has been previously mentioned. In a like manner the cost of cars and locomotives has tremendously increased. Before the war one of Germany's up-to-date express passenger locomotives would cost in the vicinity of 115,000 marks. Today the same locomotive costs approximately 700,000 marks. The ordinary freight car, which cost 3,000 marks

wonderful spirit and determination. Whereas before the war 50 per cent of the income derived from its products came from war materials, in its present program the income from this source will be practically negligible. The only war materials Krupps intends to make will be to meet the requirements of Germany's small army and navy. This company is looking principally to the railroad field as an outlet for its energies. It delivered its first locomotive last December and it is now building locomotives and cars at the rate of 300 and 2,000 per year, respectively, working two shifts a day. It is its ultimate desire to be in a position to provide everything in the iron and steel line for the complete building of a railroad system. The present capacity of these works for railway material is sufficient to meet from one-fifth to one-third of the German railway requirements as regards iron and steel materials, including cars and locomotives. The car and locomotive plants will be increased as occasion demands to an output of 900 locomotives and 20,000 cars per year, and with the equipment



Cologne Bridge. Railway Station at Left of Cathedral. Railway Yards on Opposite Side of River.

before the war, now costs 40,000 marks, and 80,000 marks if it is to be exported from the country.

The information given above, which includes authentic figures in so far as it has been possible to obtain them, represents perhaps more clearly than anything else the real situation in Germany today. With 72 per cent of her iron ore deposits lost, Germany is hardly in a position to recover her export trade, particularly as a large percentage of the ore which is necessary to keep her extensive steel plants busy is under the control of France. German industry has, however, great hopes of recuperation. It has the equipment well developed and can see no reason why, now that the war is over, it should not again participate in the world's trade. There seems to be an utter lack of appreciation of the unfriendly feeling other nations bear to Germany as a result of the war. Without ships she, of course, does not count much on her overseas business, but Russia looms up as a great market, and when conditions become settled it is expected that she will keep Germany busy for many years. The munition manufacturers are making extensive preparations for a peace business. The chief concern of the character in Germany is, of course, Krupps.

The concern is entering upon its reconstruction with a

now available this company is in a position to build cheaply under normal conditions.

One interesting feature in the construction of the locomotives is the making of bar frames from steel slabs rolled in the heavy rolling mills previously used for armor plate. The frames are cut out of these slabs, some 5 to 6 in. thick and wide enough for three frames, with the oxy-acetylene torch. Krupp has increased its plant for the manufacture of wheels and axles by about 100 per cent. The spring plant is well developed and at present time working to capacity. This company is also developing its plant for the production of agricultural machinery, typewriters, automobile parts and all other materials requiring special steels.

During the war the working area of the Krupp plant has been increased about 70 per cent and it employed 115,000 hands. At present, due to the lack of coal and raw materials, the plant is working to but one-third capacity and has in its employ only 43,000 hands. The demands for its products are so great that it can not begin to supply what is required, but it was hoped to be able to increase the output to one-half or even two-thirds of the plant capacity by next summer. In view of recent events it is doubtful if this will be accomplished.

Railroad Administration Asks \$420,000,000 Additional Appropriation

WASHINGTON, D. C.

AN ADDITIONAL APPROPRIATION of \$420,727,341 for the Railroad Administration was asked of Congress in a letter of estimate submitted to the Secretary of the Treasury on April 2 by Director General Hines. With the \$1,450,000,000 already appropriated this would make a total of \$1,870,727,341, of which \$861,963,932 represents the indebtedness of the railroads and other properties to the government; \$104,839,431 represents investments, chiefly Liberty bonds and additions and betterments to inland waterways; \$900,478,756 represents the debit balance of the Railroad Administration to March 1, 1920, and \$3,445,222 is an estimate of the administrative expenses of the Railroad Administration for the balance of this year.

Swagar Sherley, director of the Division of Finance, and Brice Clagett, assistant to the director general, discussed the details of the appropriation with Chairman Good of the House Committee on Appropriations on Monday and Director General Hines and other officials of the Railroad Administration were given a hearing before the committee on Wednesday.

In Director General Hines' report to the President dated February 28, and in the statements submitted to Congress at the time of the passage of the railroad bill the additional appropriation that would be required was estimated at \$436,000,000. This has been somewhat reduced in the revised statement but the \$420,000,000 now asked is not considered final because it is impossible to state at this time what will be the result of the settlement of claims for and against the government and the companies and no allowance has been made for the net amount that may be required to settle maintenance claims. Mr. Hines' letter explaining the need for the appropriation is as follows:

"I have the honor to submit herewith an estimate in the sum of \$420,727,341 to be immediately available and to remain available until expended, and to be added to and considered a part of the monies provided for in Section 202 of the transportation act of 1920.

"This additional sum would be expended in the same manner and for the same purpose and under the same conditions as the amount appropriated in the above mentioned section. The need for this appropriation is explained by the following statement showing the transactions of the United States Railroad Administration:

Indebtedness to the Government of Railroads and Other Properties, Including Express Companies:

1. Total advances by the Government for additions and betterments to roadway and structures and equipment (except funded allocated equipment).....	\$765,821,450
2. Amount of probable deductions therefrom on account of compensation, depreciation, open account, etc., due companies	495,741,875
3. Net amount of advances for additions and betterments to roadway and structures and equipment (except allocated equipment) to be funded for ten years.....	270,079,575
4. Advances for purchase of "Allocated" equipment which has been funded through equipment trusts, principal payable in 15 annual installments.....	367,806,968
5. Other indebtedness due Government to be evidenced by one-year notes	144,422,526
6. Long term notes payable to Government.....	44,433,664
7. Stocks, bonds, and receivers' certificates of railroad companies owned by Government.....	35,221,199
8. Total, representing indebtedness of railroads and other properties, including express companies.....	861,963,932

Other Investments of Railroad Administration:

9. Additions and betterments to inland waterways (including \$3,479,011, to be yet expended in satisfaction of contracts made prior to March 1, 1920).....	\$14,581,126
10. Miscellaneous investment (chiefly Liberty Bonds)	90,258,305
11. Total of items of indebtedness and investment.....	104,839,431
	966,803,363

PROFIT AND LOSS ACCOUNT

<i>Estimated Excess of Operating Expenses and Rentals Over Operating Revenues:</i>	
12. Class (1) railroads.....	\$677,513,152

13. Other privately owned properties (smaller roads, sleeping and refrigerator car lines and steamship lines).....	43,011,129
14. Inland waterways	2,449,739
15. Expense of central and regional organizations	13,954,980
16. American Railway Express Company.....	38,111,742
<i>Other Profit and Loss Debit Balances:</i>	
17. Adjustment for materials and supplies in settlement with railroad companies on account increasing prices.....	85,204,618
18. Net interest adjustments and miscellaneous income debits and credits.....	40,233,396
19. Total profit and loss debit balance.....	900,478,756
20. Administrative expenses of the Railroad Administration from March 1, 1920, to January 1, 1921.....	3,445,222
21. Grand total requirements.....	1,870,727,341
23. Original appropriation, Federal Control Act. \$500,000,000	
24. Deficiency appropriation	750,000,000
25. Appropriation carried in Transportation Act of 1920	200,000,000
26. Total appropriations	1,450,000,000
27. Estimated amount required to enable Railroad Administration to fund certain indebtedness of the railroad companies in accordance with the Transportation Act, and to defray the costs of the Federal control.....	420,727,341

"In connection with the foregoing estimate of the amount of the appropriation required to liquidate the affairs of the Railroad Administration, no allowance has been made for the settlement of claims on the part of the corporations for under maintenance of their property during the period of federal control. While there may be such claims on the part of some corporations, there will be, on the other hand, claims by the government against other corporations for maintenance of the property in excess of the contract requirements, which may require the payment of sums by the corporations to the government. In the absence of final figures, it seems best not to make any estimate of the net amount required to settle maintenance claims."

Thus far the only large road that has filed its claim for undermaintenance is the Seaboard Air Line and the amount of its claim has not been made public. The Railroad Administration has not yet stated its claims against the companies for maintenance in excess of its contract obligation, but it is withholding sums from its payments to the companies on account of their rental for the period of federal control to cover the amount of such possible claims for over-maintenance. The railroads that think they have something coming to them for deferred maintenance are not in such a fortunate position as to be able to retain control of the amount in dispute.

As far as the present estimate indicates, the cost to the government of federal control of the railroads and other transportation systems stands at about \$904,000,000, assuming that the outstanding indebtedness to the government will be paid in full. This does not, of course, include the deficit which the government is expected to have to pay on account of its extension of the guaranteed standard return for six months.

The revised statement contains many changes in the figures as compared with the estimates made by the Railroad Administration before the January and February returns were in. (*Railway Age* for March 5, page 695). For instance, the advances for additions and betterments, estimated at \$780,000,000, are now stated at \$765,000,000. The amount which may be deducted therefrom on account of rental has been increased from \$461,000,000 to \$495,000,000. The net amount of the indebtedness for additions and betterments which the roads are given 10 years to pay for has been reduced from \$318,000,000 to \$270,000,000, but the amount due on account of the equipment funded for 15 years has been increased from \$357,000,000 to \$367,000,000. The indebtedness of the roads to the government to be evidenced by one-year notes has been reduced from \$194,000,000 to \$144,000,000. The amount of railroad securities owned by the government has been increased from \$23,000,000 to \$35,000,000.

The total representing the indebtedness of the railroads and other companies to the government has been reduced from

\$938,000,000 to \$861,963,932, and the government's investment in additions and betterments to inland waterways and in Liberty bonds, etc., has been increased from \$93,000,000 to \$104,839,431, making the total of items of indebtedness and investment, which the government may be expected to recover, \$966,803,363 instead of \$1,031,899,451, as previously estimated.

The amount of the Railroad Administration's debit balance has been increased in the revised statement from \$854,000,000 to \$900,000,000, to which must be added the estimate of \$3,445,000 for its expenses for the balance of 1920. The estimated excess of operating expenses and rentals of Class I roads has been reduced in the revised statement from \$715,000,000 to \$677,000,000, while the loss from the operation of other properties has been increased and the amount for adjustment of materials and supplies has been increased from \$74,000,000 to \$85,000,000. The item which includes interest adjustments has been converted from a credit of \$17,900,000 to a debit of \$40,000,000.

Wage Controversy to Go to Labor Board

WASHINGTON, D. C.

NEGOTIATIONS between the conference committees constituting a bi-partisan board representing the railroads and the principal organizations of railroad employees that are asking additional increases in wages estimated at over one billion dollars annually were terminated on April 1, after the railroad committee had declined the requests on the ground that the roads could not assume the responsibility of adding such a burden to the costs of transportation, which are necessarily borne by the public, without the full knowledge and consent of the public, through its representatives, and that the entire matter must be disposed of as provided in the Transportation Act. This means that the controversy must be submitted to the Railroad Labor Board to be appointed by the President, on which the public will have three representatives, the employees three and the railroad management three. The railroad committee invited the committee representing the employees to join with it in the formation of a committee to prepare data on the various aspects of the subject which must ultimately be presented to the Labor Board, with a view to expediting the disposition of the case. The labor committee declined to join with it in the formation of such a committee and announced its intention of appealing direct to the Labor Board.

The conference committee representing the employees insisted that the representatives of the railroads and of the employees by conference should reach an agreement upon wages and working conditions and that the law contemplates such an agreement prior to any opportunity for participation by the representatives of the public. In reply to this contention, E. T. Whiter, chairman of the Railway Executives' Conference Committee, said in a public statement:

"While Section 301 of the transportation act does provide that representatives of the carriers and of their employees may reach agreement upon matters in controversy, it is not believed by the management conferees that Congress ever contemplated that a controversy involving so great an addition to transportation costs and in which the public is therefore so vitally interested should be disposed of by direct negotiation.

"This interpretation of the spirit of the law is borne out by the provision in Section 307 that if the carriers and the employees should by direct negotiation agree upon wage increases 'likely to necessitate a substantial readjustment of the rates of any carrier,' the Labor Board may suspend such agreement until it can inquire into its character.

"Another provision brings out this thought still more

clearly by providing that in important cases at least one member of the public group on the Labor Board must join in the decision in order to make it effective. In view of this specific provision of the law it seems clear to us that its framers never intended that representatives of the managements and of the employees, without any public representation, should reach an agreement upon demands involving more than a billion dollars increase in wages."

The position of the railroads was stated in a letter from Mr. Whiter to B. M. Jewell, chairman, Railway Employees' Conference Committee, on March 30, as follows:

"In conformity with a request made by the President of the United States upon the Association of Railway Executives and the chief executives of the various organizations of employees, this board, or joint conference, was convened for the purpose of endeavoring to dispose of the wage requests pending at the end of federal control by the method provided in Section 301 of the transportation act.

"The first meeting was held on March 10, 1920, at which the director general addressed the board and left with us the thought that, owing to the importance of the subject and the delay that had already ensued, the whole matter should be taken up at once and expedited to the greatest possible extent. As some preliminary work was necessary, subsequent conferences were held March 22 to 25, inclusive, within which time you submitted your respective propositions. A recess was then taken during which the railroad representatives considered your requests and compiled figures to estimate the increased yearly costs. A very conservative estimate shows a total of more than one billion dollars.

"This estimate is based only on the requested changes in the rates of pay, and no attempt has been made to estimate the cost of changes in rules which would further materially increase the total. Consideration of your requests and the bases upon which they are predicated has convinced our conferees that there is no intermediate ground which could be reached that in itself would not represent an aggregate sum so great as to be beyond the possibility of our reaching a settlement.

"To study all angles of the subject exhaustively would require a long time, and, notwithstanding any points which might develop in your favor, the railroads could not assume the responsibility of adding such a burden to the costs of transportation, excepting with the full knowledge and consent of the public through its representatives, and we must, therefore, decline to grant your requests, and let the matter be disposed of as provided in the transportation act.

"We feel that it would be an injustice to you and to those you represent to further prolong these conferences, and if you desire to appeal to the Labor Board, we invite you to select a committee of your representatives to work with a committee which we may select to prepare data on the various aspects of the subject, so that we can agree upon such data, even in part, some time at least, will have been saved in presenting the case to the Labor Board.

"We note that the propositions submitted include several subjects which we understand were disposed of by the United States Railroad Administration prior to the termination of federal control, and therefore ought not to be considered as pending. However, in view of our conclusions as to the disposition of the present requests, it appears unnecessary to enter into a discussion of these features of the situation at this time."

To this Mr. Jewell, as chairman of the employees' committee, replied on April 1 in part as follows:

"The attitude of your committee in failing to carry out the wishes of the President of the United States comes as a surprise to us, and will result in keen disappointment to our constituents, as well as the general public, both of whom are parties as interest and entitled to more consideration from the bi-partisan board than you have elected to give.

"We understand from this that your committee has definitely declined to assume the responsibility and perform the duty which is so clearly desired in the public interest, and which Section 301, as we understand it, contemplates; that of agreeing in conference upon rates of pay for railroad employees which are just and reasonable.

"Your statement that no agreement should be reached by the railroads and employees which has not been passed upon by the representatives of the public, given as the reason for terminating the negotiations, is not in accord with our understanding of the law.

"Section 301 clearly intends that the representatives of the railroads and employees should, by conference, agree upon just and reasonable rates of pay, working conditions, etc.

"Your committee has declined to comply with the plain provisions of the law, and assume the responsibility of railroad managements with regard thereto, and has not given consideration to the requests of the employees for just and reasonable rates of pay, working conditions, etc., based upon the provisions of Section 307, paragraph (d), which shall be the guide of the labor board. Therefore, these same provisions should be the guide of all parties who deal with these questions.

"Your entire deliberations seem to have been predicated upon the sole basis of the costs without regard to the justness and reasonableness of the requests of railroad employees.

"Your declination to consider the requests of the employees upon their merits does not place us in a position, at this time, to join with you in the appointment of committees to prepare data for presentation to the Labor Board.

"The decision of your committee forces us to appeal to the Labor Board under the provisions of the transportation act, and so notify President Wilson, because of his request for the creation of this bi-partisan board."

Copies of this correspondence were sent to the President.

The labor committee also tried to secure an agreement from the railroad committee to preserve the effect of the general orders of the Railroad Administration relating to wages, and the supplements, amendments, addenda, national agreements and interpretations thereof, but the committee representing the railroads took the position that this was outside its province.

The principal labor organizations made the following nominations for appointment to the Labor Board, in accordance with the regulations promulgated by the Interstate Commerce Commission:

Group No. 1. F. A. Burgess, assistant grand chief, Brotherhood of Locomotive Engineers; Albert Phillips, vice president, Brotherhood of Locomotive Firemen and Enginemen; L. E. Sheppard, president, Order of Railway Conductors; G. H. Sines, vice president, Brotherhood of Railroad Trainmen; William A. Titus, vice president, Switchmen's Union of North America.

Group No. 2. A. O. Wharton, president, railway employees' department, American Federation of Labor, first choice; B. M. Jewell, acting president, railway employees' department, American Federation of Labor is named as second choice.

Group No. 3. J. J. Dermody, vice president, Order of Railroad Telegraphers; A. E. Barker, president, United Brotherhood of Maintenance of Way Employees and Railroad Shop Workers; James J. Forrester, president, Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees.

The railway executives also submitted six nominations and the organizations representing subordinate officials and several minor labor organizations were also allowed to submit nominations.

Railroad Law Departments to Settle Claims for Director General

THE LAW DEPARTMENT of the various railroads have been authorized and requested to handle and settle for the director general of railroads, claims and suits for loss and damage, personal injuries, etc., during federal control, subject to a limitation as to the amount. The instructions are given in a circular issued by E. Marvin Underwood, general counsel of the Railroad Administration, as follows:

"Supplementing previous instructions and until further notice, your law department is authorized and requested, pursuant to existing general orders Nos. 41 and 57a, and circulars Nos. 3, 5, 6 and 7 of the Claims and Property Protection Section, to handle, for the director general of railroads, and for his account, all claims, demands, actions and suits (except claims and suits of carriers against the director general or the United States).

"(1) Whether now pending or hereafter instituted, growing out of the operation of the properties of your company by the director general during federal control; (2) which are now pending and which, although arising out of the operation, during federal control, of some other system of transportation, were handled, during federal control, by attorneys who had charge, for the director general, of litigation and claims arising out of the operation of your properties; (3) which, unless otherwise specifically provided for, may be hereafter filed or instituted and which would be, according to the practice during the period of federal control, handled by your law department, although such litigation or claims have arisen out of the operation during federal control of some other system of transportation (for example, freight claims made upon you as a connecting carrier, although the damage may have been caused by another carrier).

"When it is thought that a claim or suit may be better handled by another carrier, which, because more directly affected, agrees to take charge of same, it may be, with the approval of the general counsel of the director general, transferred to such other carrier for future handling.

"Authority is hereby conferred upon your law department, upon such terms as in its judgment will best protect and promote the interests of the director general and of the United States, to compromise and settle all suits and claims arising out of personal injuries, involving not more than \$3,500 in any one case; all suits and claims arising out of loss and damage to freight, fire and stock claims and suits, and miscellaneous claims and suits, involving not more than \$500 in any one case, and to arrange for the accounting with reference thereto and payments thereof as provided in general orders Nos. 66, 67 and 68 (except as to payment of final judgments, decrees and awards, rendered after February 29, 1920, as to which special instructions are necessary and will be subsequently issued). As to the settlement and payment of all other suits and claims specific authority therefor must be first secured from the general counsel of the director general, and a statement of facts, together with your recommendations, should be forwarded to him with the request for such authority.

"These instructions do not refer to payment of overcharges, which are covered by General Order No. 68, nor to reparation claims which have not been made the subject of formal complaint before the Interstate Commerce Commission. Such reparation claims will be handled pursuant to instructions contained in circular No. 7, of the Division of Traffic, as amended February 25, 1920."

HIGHER RATES OR TAXES.—If there must under private ownership and management be a direct increase of rates it will be instead of the absorption of losses by the taxpayers.—*Moline (Ill.) Dispatch.*

Southern Railway Rebuilds Chattanooga Bridge

Condemnation of the Old Spans Forces Rapid Completion of the New Tennessee River Structure

A PROJECT in emergency bridge construction was recently completed by the Southern Railway at Chattanooga, Tenn., as a consequence of an unusual predicament brought about through the barring of traffic from its Tennessee river bridge at that point subsequent to the raising of a question as to its safety under the loads imposed by the existing traffic. Following complaints regarding the adequacy of the truss spans of this structure, engineers in the employ of the United States Railroad Administration made an inspection and report on the bridge with the result that the operation of trains over the structure was discontinued until the truss spans could be strengthened or replaced.

The obstacle which this ruling imposed on the Southern in the handling of traffic on its western lines will be more readily understood with the help of the small map showing the lines of the system in the vicinity of Chattanooga, Knox-

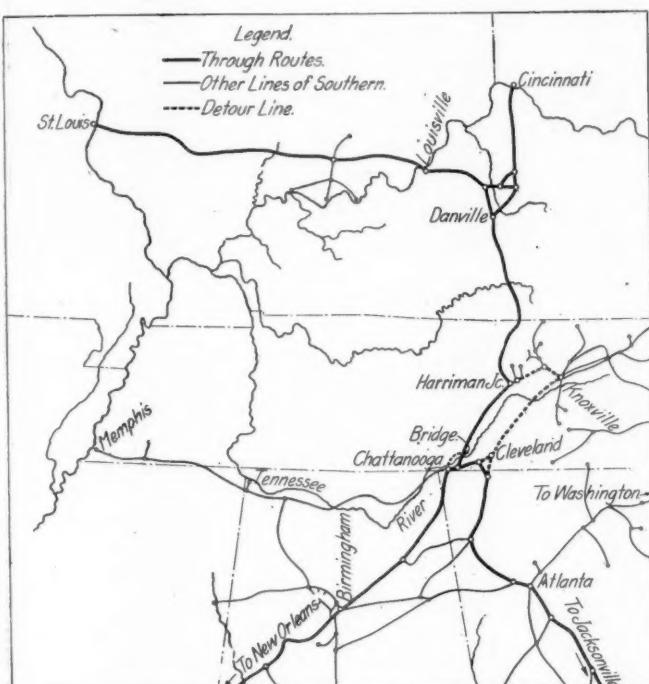
cinnati, New Orleans & Texas Pacific to a point just north of the bridge, thence westward over an industrial spur and the tracks of the Chattanooga Traction Company to North Chattanooga, a suburb located just across the river from Chattanooga. A temporary passenger station was installed at this point from which passengers were taken by bus to the business center of the city or to the terminal station for transfer to trains for the southwest. A more detailed statement of the manner in which the detouring was accomplished appeared in the *Railway Age* for March 12, 1920, page 772.

Old Structure in Service 40 Years

The old Tennessee River bridge was built in 1878 for single track and consisted of six through, Whipple truss spans 210 ft. long, one through span of 261 ft., and one through swing span of 283 ft., all measured center to center of piers. The elevation of the base of rail was 65 feet above low water level in the river, but only about 11 ft. above the maximum recorded high water. The ground level adjacent to the river, more especially on the south bank, is relatively low, so that long approach embankments were necessary. The substructure consisted of high stone masonry piers and T-abutments. Owing to the fact that the river bottom is bare rock, or rock covered with a relatively thin blanket of loose stone, clay and gravel, nearly all of the old piers were placed directly on the rock bottom.

The renewal of this bridge to provide for modern train loads and double track was undertaken in 1916. It was decided to replace six of the old 210-ft. fixed spans by new ones of the same length, move the channel opening northward about 260 ft., so as to occupy the position of the old 261-ft. span and a part of the old north channel opening, and, in place of a draw span, provide a vertical lift span with a channel opening of 300 ft. clear width and arranged to raise sufficiently to give a vertical clearance of 50 ft. above high water. This involved provision for a new 230-ft. fixed span south of the lift span. It also required the widening of the two abutments and Piers 4, 5, 6, 7 and 8 to accommodate the double-track superstructure, in addition to the construction of a new pier to carry the south end of the new lift span.

Work was prosecuted along this line during 1916 and part of 1917. The new pier was built and the old ones jacketed and extended and the abutments were widened by changing them into reinforced concrete counterfort wing abutments. Progress on the superstructure was carried to the point of fabricating and erecting the 300-ft. lift span, but omitting the elevating towers and machinery. To provide room for this span it was necessary to cut off about 53 ft. from the north end of the old draw span, provide a counterbalance and continue the span in operation in that shape. With the bridge in this condition, work was suspended in 1917 on account of the war and nothing further was done until the structure was ordered out of service in August, 1919.



Map Showing How Traffic Was Detoured During Reconstruction

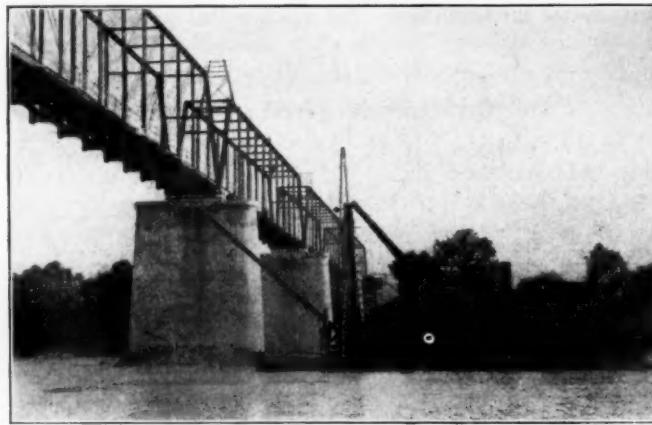
ville and Atlanta. The through traffic over the Cincinnati, New Orleans & Texas Pacific from Cincinnati to Birmingham, New Orleans, Atlanta, Jacksonville and other points in the south, is normally handled through Chattanooga as indicated by the heavy lines on the map. This route involves the crossing of the Tennessee river over the bridge in question at Tennbridge, about six miles northeast of Chattanooga.

During the time that the bridge was out of service, it was necessary to detour all through freight trains between Cincinnati and southern points, as indicated by the heavy dotted line, via Harriman Junction, Knoxville and Cleveland, and thence either south through Atlanta and beyond, or west through Chattanooga to Birmingham and New Orleans. Through passenger trains between Cincinnati and the southeast followed the same route, but those running between Cincinnati and New Orleans followed the usual line of the Cin-

Rapid Construction Imperative

The emergency brought about by this order called for a construction program that would insure the restoration of this river crossing at the earliest possible date. Aside from the interference with traffic, the recurrence of high water in the Tennessee river each winter made it necessary to institute a plan that would insure the completion of the substructure work before cold weather. After making estimates of the

time necessary to fabricate and erect the truss spans required for the adopted plan and taking into account the fact that the erection falsework would be in use just at the time when the danger of high water was the greatest, it was decided to make radical changes in the plans for the bridge. In place of the truss spans it was decided to provide deck plate girder spans, consisting, in general, of two 105-ft. girders for each of the 210-ft. truss spans and two 115-ft. girders for the 230-ft. truss span. This required the construction of six additional intermediate piers and the raising of the entire sub-structure, since the substitution of deck plate girders for the through truss spans made it necessary to raise the track grade by 5.62 ft. to meet the requirements of the War Department.



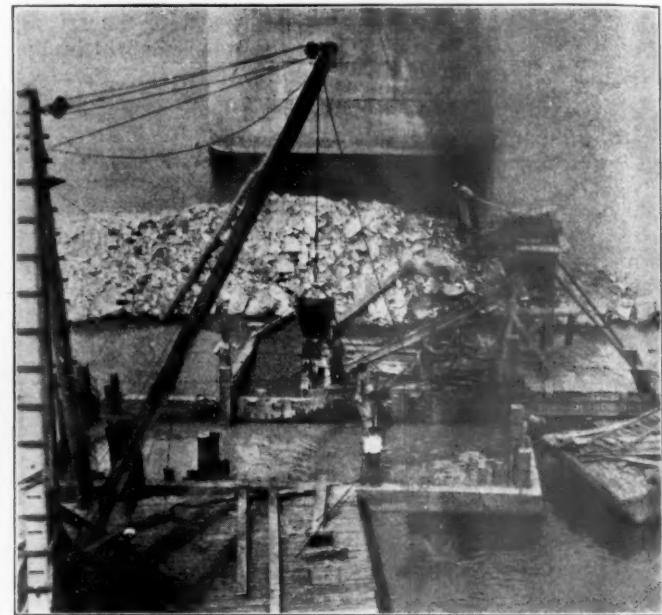
View of the Old Spans on the Rebuilt Piers

One effect of this was to require the embankment approaches to the bridge to be raised, the elevation at the north end being carried back 3,400 ft. and requiring the placing of 65,000 cu. yd. of filling and that on the south end going back 2,700 ft. with the use of 115,000 cu. yd. of additional embankment material.

How the Foundation Work Was Handled

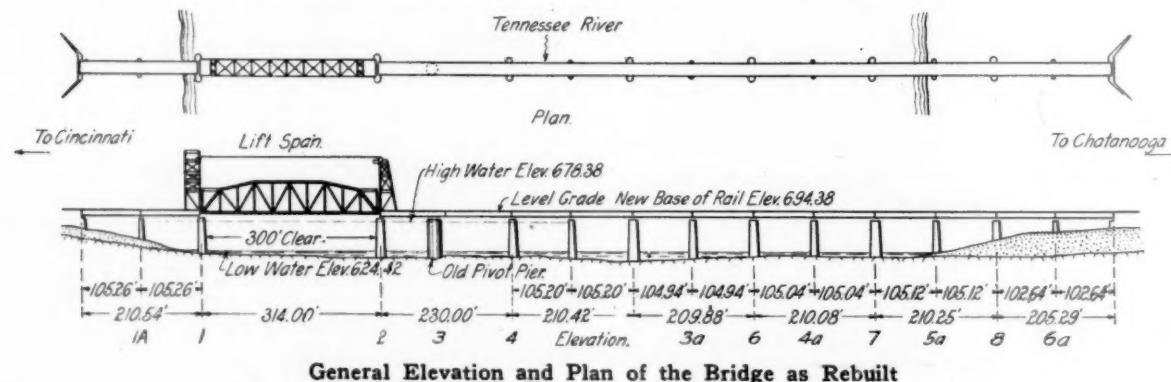
New Pier 6-A was placed on 45 Raymond concrete piles with about 24 to 30 ft. penetration, their tops being embedded in a reinforced concrete footing slab 4 ft. thick. The other

To this end the material overlying the rock at the site of each pier was removed with an orange-peel bucket, handled by a stiff-leg derrick mounted on a scow, the spoil being dumped back into the river at a point within the reach of the swing of the boom. On the rock surface thus prepared, a cofferdam 16.5 ft. by 40 ft. in plan was floated into position and sunk by weighting it with steel rails. This was composed of a single thickness of 12-in. by 12-in. timbers placed horizontally and drifted together. It was stiffened by other 12-in. by 12-in. pieces placed vertically inside the



The Cofferdam, Bottom Dump Bucket and Tower Spout

walls at the corners and at intervals between. To take care of any irregularities in the rock surface, sheet piling was driven inside the walls at places where the bottom of the cofferdam walls was not in contact with rock. The condition of the bottom and the position of the cofferdam with respect to the rock was carefully checked by a diver. As a further precaution, the outside of the open caisson was banked with



General Elevation and Plan of the Bridge as Rebuilt

five new piers were carried to rock. Piers 2-A to 5-A, inclusive, were located directly in, or close to, open water, with the depth of water running up to about 23 ft., so that the construction and sinking of cofferdams or open caissons, which would have permitted excavation and concreting in the dry, would have constituted a difficult piece of work that would unquestionably have extended long into the high water season. As a consequence, it was decided to adopt the more expeditious plan of placing the concrete under water since the cofferdams or underwater forms required for this procedure could be built in much less time than puddled cofferdams.

the excavated material which was re-deposited against it by the grab bucket from the spoil piles. Before placing any of the concrete, a diver sealed the edges of the dam by placing sacks of concrete along the walls.

The concrete was deposited under water by a bottom-dump bucket, handled by a stiff-leg derrick mounted on a barge. This bucket was filled with concrete from a small hopper and spout rig set up in a 10-ft. tower on a second barge, this hopper in turn receiving its supply of concrete from the mixing plant in a bucket delivered by a 2,000-ft. cableway spanning from shore to shore. The building up of the mass of

April 9, 1920

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concrete under the water surface was checked carefully while the work was in progress with the aid of sounding rods and, when deemed necessary, through an examination by the diver.

After the top of the concrete had been brought to within two feet of low water level, forms were erected and the rest of the concrete poured inside these. As all of the new piers are of the same dimensions from the top to the cofferdam level, the forms, which were built in portable horizontal sections, could be readily re-used on the several piers since the form section built for use at a given elevation on one pier would fit the same elevation on any other. The concreting in the forms was carried on in exactly the same way as for the portion that was deposited under water except that the



The Concrete Plant with New Lift Span at the Left

bottom dump bucket was eliminated. In other words, the spout and hopper rig was set up on top of the forms in a position where it was readily accessible to the cableway while the spout was long enough to deliver the concrete to any part of the pier.

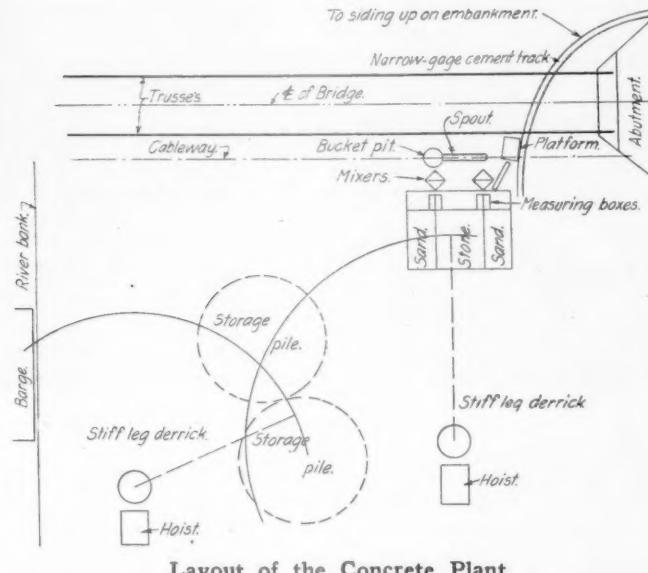
A total of 4,700 cu. yd. of concrete was required for the new sub-structure work, all of which was supplied from one mixing plant located on the north bank of the river, just east of the bridge between the north abutment and Pier 1-A. All of this concrete was also delivered to the piers by the cableway which was located parallel to, and just clear of, the east line of the trusses of the bridge. The layout of the mixing plant is indicated in the sketch. Stone and sand were delivered at the river bank in barges. The cement arrived in cars set out on the bridge track just north of the abutment. Delivery of these materials to the plant involved the use of two stiff-leg derrick outfits with grab buckets for the stone and sand, and cars running on a narrow-gage track to take the cement from the railway cars down the end of the embankment to the mixers which stood at the foot of the abutment.

The mixing plant, which was in duplicate, was of the conventional type with overhead material pockets, one for stone in the middle with a smaller one for sand on each side. This arrangement made it possible to deliver these materials to two measuring boxes, each having separate compartments for sand and stone. These boxes stood on a working platform flanking the north side of the hopper structure which also afforded space for the water barrels and storage for a limited supply of cement sacks. The two mixers, a $\frac{1}{2}$ -yd.

and a $\frac{3}{4}$ -yd., stood in front of the measuring boxes at an elevation low enough to receive the contents of the measuring boxes by gravity, while in front of the south mixer was a pit for the reception of the cableway bucket while it was being filled with concrete. This bucket received the charges of the south mixer by direct dumping, but a spout was required for the north mixer. The capacity of the plant was limited by the capacity of the cableway, which varied with the length of travel.

The Work on the Superstructure

When the sub-structure was ready for the erection of the new superstructure, the old fixed spans were shifted westward on the piers as far as the length of the piers permitted so as to make room on the east ends of the piers for the erection of the girders for the east track. The erection of the new superstructure proceeded progressively from both ends of the bridge. Each girder was set into place independently by a bridge derrick car, the girders of each span then being assembled by the cross and lateral bracing and decked to permit the advance of the derrick car to the next span. The last span to be erected was set complete by two derricks, one on each of the adjacent spans. With the erection of all of the girders for one track, it was possible to restore traffic on January 20. However, several important steps in the work remained to be completed. The old truss spans had to be removed, after which the girders for second track were installed, although for the present this has been done only for the first five spans, including the lift span. The towers for the lift span have been erected and the lift span, which was erected to correspond to the old base of rail level, has



Layout of the Concrete Plant

been jacked up so that it comes to the newly established grade line.

The work on this structure was carried on under the general direction of E. M. Durham, Jr., until recently chief engineer of construction, Southern Railway, Washington, D. C., and under the more immediate direction of R. W. Jones, Jr., district engineer, Lexington, Ky., with P. R. Shields, resident engineer at the bridge. G. H. Gilbert, bridge engineer, Southern Railway Lines West, had charge of the details of the steel work. The American Bridge Company, New York, had the contract for the steel fabrication and erection.

IN THE LONG RUN the whole people are more concerned in the steady, regular and efficient operation of the railroads than either the railroad owners or the railroad workers.—*Yonkers (N. Y.) Statesman*.

Locomotives for the Belgian State Railways

ON MARCH 1 the American Locomotive Company at its Schenectady works completed the first engine of the order recently placed by the Belgian State Railways. The contract for this order, which calls for 150 locomotives, 75 to be built by the American Locomotive Company and 75 by the Baldwin Locomotive Works, was signed in Brussels on December 13. It was not until December 24 that the engineering department of the American Locomotive Company was furnished the information necessary to enable it to proceed with the design of the locomotive. The design was entirely new and the metric system was used throughout, yet in 52 working days the first locomotive was completed.

While the locomotives are of American design in all their details, as will be noted from the photograph, the Belgian type of cab and tender were used. This was done in order to permit the American locomotives to couple with the existing Belgian tenders and vice versa. The Belgian State Railway's standard train connection of the screw link type with two spring buffers, the international system of threads, and French-Westinghouse brake equipment with French-Westinghouse pipe threads were also included.

These engines are to be used in both freight and passenger service and are designed for 16-deg. curves and a maximum grade of 3.3 per cent. Following European practice, all the engines are built for left-hand drive. All gages are graduated in kilograms per square centimeter.

The specification called for a weight on drivers of 164,000 lb., weight on truck of 22,000 lb., total weight of engine

wheel. The counterbalance for the reciprocating parts was divided among the eight coupled wheels, and had to be such that the dynamic augment should not exceed 15 per cent of the static weight on the rail at 60 km. (37.3 mi.) per hour.

In accordance with European practice all of the side rods have adjustable bearings. The by-pass valves are operated from the superheater damper cylinder. All of the material used is in conformity with the A. S. T. M. standard specifications. The last five of the locomotives to be built by the American Locomotive Company are to be equipped with Worthington feedwater heaters.

The tender frame is made of steel plate and is supported on three pairs of wheels held in rigid pedestals, the tender tank being arranged so as to drop down in between the frame.

General Data

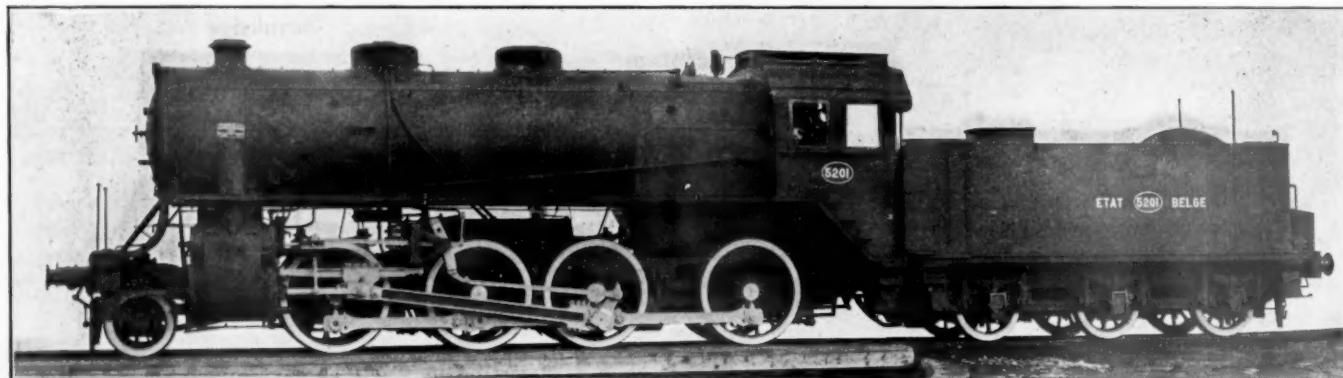
Gage	1.435 m. (4 ft. 8½ in.)
Service	Passenger and freight
Fuel	Bituminous coal
Tractive effort	15,800 kg. (34,800 lb.) at 65 per cent m. c. p.
Weight in working order	85,276 kg. (188,000 lb.)
Weight on drivers	75,750 kg. (167,000 lb.)
Weight on leading truck	9,526 kg. (21,000 lb.)
Weight of engine and tender in working order	138,619 kg. (306,000 lb.)
Wheel base, driving	5.941 m. (19 ft. 6 in.)
Wheel base, total	8.532 m. (28 ft.)
Wheel base, engine and tender	16.344 m. (53 ft. 8 in.)
Weight on drivers ÷ tractive effort	4.79

Cylinders

Kind	Simple
Diameter and stroke	610 m. by .711 m. (24 in. by 28 in.)

Valves

Kind	Piston
Diameter	305 mm. (12 in.)
Greatest travel	165 mm. (6½ in.)
Outside lap	27 mm. (1⅓ in.)
Inside clearance	3 mm. (.118 in.)
Lead in full gear	4.5 mm. (.177 in.)



Consolidation Type Locomotive for Belgium Built in Record Time

186,000 lb., and a weight limit per axle of 42,900 lb. The official scale weights are as follows:

First driver	41,600 lb.
Second driver	41,600 lb.
Third driver	41,900 lb.
Fourth driver	41,900 lb.
Total drivers	167,000 lb.
Truck	21,000 lb.
Total engine	188,000 lb.

The boiler is of the straight top type, 68 in. in diameter at the front end. It carries 200 lb. steam pressure and has a copper firebox 96 in. by 60¼ in. All staybolts are of copper, with a tell-tale hole drilled in both ends. The firebox is supported at the front end by a sliding shoe, with a brass wearing plate and a large oil groove. The jacket is supported on a crinoline frame and is extended to the front end of the smokebox. A brick arch supported on tubes and a Locomotive Superheater Company's type A superheater are also included. The finished boiler was tested with cold water to a pressure of 19 kg. per sq. cm. (270 lb. per sq. in.), but no steam test was required.

The revolving parts were completely balanced in each

Driving, diameter over tires	1.520 m. (60 in.)
Driving, thickness of tires	.76 mm. (3 in.)
Driving journals, main, diameter and length	263 in.
Engine truck wheels, diameter	.90 m. (35½ in.)

Boiler

Style	Straight top
Working pressure	14 kg. per sq. cm. (199.3 lb. per sq. in.)
Outer diameter of first ring	1,694 m. (66¾ in.)
Firebox, length and width	2.438 m. by 1.530 m. (96 in. by 60¼ in.)
Firebox plates, thickness	.16 mm. (5/64 in.)
Firebox, water space. Front, 162 mm. (4 in.); sides and back, 89 mm. (3½ in.)	
Tubes, number and outside diameter	160—51 mm. (2 in.)
Flues, number and outside diameter	26—137 mm. (5/8 in.)
Tubes and flues, length	4,724 m. (15 ft. 6 in.)
Heating surface, tubes and flues	171.7 sq. m. (1,847 sq. ft.)
Heating surface, firebox, including arch tubes	15.7 sq. m. (169 sq. ft.)
Heating surface, total	187.4 sq. m. (2,016 sq. ft.)
Superheater heating surface	.45 sq. m. (484 sq. ft.)
Equivalent heating surface*	254.9 sq. m. (2,742 sq. ft.)
Grate area	3.7 sq. m.

Tender

Tank	Water bottom
Frame	Steel plate
Wheels, diameter	1.067 m. (42 in.)
Water capacity	24,000 litres (6,350 gal.)
Coal capacity	7,000 kg. (7.72 tons)

*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

Strikes and Storms Conspire to Cripple Traffic

Walkout of Switchmen and Blizzard Hit Chicago Simultaneously, Tying Up Freight and Passenger Trains

STRIKES, THREATENED STRIKES, blizzards and even tornados have conspired during the past few weeks to interfere with and eliminate if possible, the carrying on of transportation in the central west. In the vicinity of Chicago at the present time two of these forces combined to interfere seriously with the movement of freight and passenger trains, namely: An unauthorized strike of switchmen, members of the Chicago Yardmen's Association, and a six-inch snowfall which accompanied a blizzard in this district on Easter Sunday. Several days prior to this, passenger and freight traffic in Nebraska, Iowa and adjacent states was badly crippled by the same storm which was moving east. Coincident with the severe storm in the middle west, 3,000 brakemen and switchmen, members of the Brotherhood of Railway Trainmen employed on the Chicago, Rock Island & Pacific, were threatening to strike. However, this difficulty was averted by the institution of a new set of working rules submitted by the brotherhood and accepted by the company. Prior to this, considerable damage was done to railway equipment and facilities in the vicinity of Chicago by a tornado which swept across the western and northern suburbs of the city on Sunday afternoon, March 28.

The Chicago Strike Situation

The strike of switchmen and switch tenders in the Chicago district originated on the Chicago, Milwaukee & St. Paul on April 1, following the removal of John Granau, a yard conductor and organizer and president of the Chicago Yardmen's Association. The 700 striking members of this organization on the St. Paul presented the removal of Granau as their main grievance. However, at the same time they filed the following demands:

"The Chicago Yardmen's Association submits to you the following working conditions and rate of pay to govern the Chicago switching district.

"Foreman of all yard and transfer engines, \$1 per hour; yard helpers, 95 cents per hour; switch tenders, \$5 per day for attending not more than three switches; helpers' rate of pay to apply at 95 cents an hour; time and a half for overtime, Sundays and all legal holidays, and where they are required to work more than eight hours on Sundays or legal holidays double time for all time exceeding eight hours."

Yardmen employed on the Illinois Central, the Chicago & North Western and the Chicago Junction walked out on April 3. Abetted by the blizzard which hit Chicago simultaneously, the walk out for a time completely tied up yard traffic in the Chicago switching district. Afterwards yard employees on the Atchison, Topeka & Santa Fe, the New York, Chicago & St. Louis, the Grand Trunk, the Belt Railway of Chicago, the Indiana Harbor Belt, the Michigan Central and the Pennsylvania left their work in small groups, and on Monday, April 5, approximately 60 per cent of the switchmen employed on the roads involved were on strike.

Conflict Between Brotherhoods

A peculiar situation has arisen as a result of the status of the organization behind the walkout. A large majority of the men on strike are members also of the Brotherhood of Railway Trainmen. When the strike was called, following the dismissal of John Granau, the General Managers Association, representing the railroads involved, went into conference with representatives of the Brotherhood of Railway Trainmen and the Switchmen's Union of North America, of which some of the striking switchmen are also members.

These two unions, both national in scope, agreed to stand by their contracts and assist the managers in ending the strike. As a result of this conference, the following statement was issued by the association on April 5:

"Sixty per cent of the switch engines in Chicago are out of service. This has been caused by an outlaw organization which has presented demands for rates of pay that already had been presented to the railroad organizations by the Brotherhood of Railway Trainmen and the Switchmen's Union of North America.

"These demands are being handled by the wage conference at Washington and must, under the transportation act, be concluded before the labor board, yet to be named by the President.

"All the railroads at Chicago have contracts covering yard rates and conditions for switchmen and switch tenders with either the Brotherhood of Railway Trainmen or the Switchmen's Union of North America. The railroads have called the officers of these organizations to live up to and carry out these demands, which the organizations have agreed to do until such time as the wage question now being handled under the transportation act is disposed of by the labor board."

It is evident from the manner in which freight and passenger traffic is being handled in this district that the unauthorized strike would not have affected transportation in the Chicago district seriously had it not been for the effect of the Easter blizzard, which, of itself, demoralized schedules on Easter Sunday, and has, up to the present time, seriously handicapped the movement of traffic. The six inches of snow which accompanied the blizzard was extremely heavy and packed easily, and has, therefore, seriously interfered with switch movements and interlocking.

The strikers claim they have nearly 14,000 men out. This is derived by the officers of the lines involved and officers of the Brotherhood of Railroad Trainmen, who announced after a careful canvass that not more than 2,500 men, switchmen and switchtenders, are participating in the walkout. By replacing some 800 strikers with unionists, they say, the troublesome spots will be relieved and the tieup will begin to unravel itself.

Congestion in the yards by reason of through freight was relieved when freight trains, routed through Chicago, began to pass east and west through other points. Thousands of cars were diverted.

Railroad officers state that the yards are operating at at least 40 per cent efficiency, and, as a matter of fact, the blizzard has been tying things up worse than the strike itself.

Results of the Strike and Storm

As a result of the unauthorized strike and the traffic situation at Chicago, embargoes have been placed by all roads in Chicago upon shipments receivable from other lines and an embargo on all outgoing shipments has been declared by the American Railway Express Company. The situation at the Chicago stock yards has been seriously complicated by the walkout in that the receipts of live stock immediately fell to approximately 20 per cent of normal.

A development in the situation occurred on Tuesday, April 6, when leaders of the Brotherhood of Railway Trainmen and the Switchmen's Union of America entered the fight actively to break the strike by bringing in between 400 and 500 yardmen, all unionists, from outside points. It is expected that by this action the various railroads affected will be operating normally by Saturday, April 10.

Congestion in the Chicago yards has been greatly relieved by detouring freight trains ordinarily routed through Chicago to the east and west through other points.

Power-Limiting and Indicating System of the St. Paul

THE POWER LIMITING and indicating system constitutes a novel feature of the original equipment furnished by the General Electric Company to the Chicago, Milwaukee & St. Paul for the electrification of its Rocky Mountain and Missoula divisions. This system has overcome a number of difficult problems.

Several different schemes were proposed and investigated, such as increasing the frequency of the circuit proportional to the power input, adding electrical impulses of different kinds, etc., but the system which was finally adopted was found to be the simplest, to require the least number of pilot wires, and to necessitate very little apparatus in either the substations or the despatcher's office.

The general requirements specified by the railway were based on its desire to obtain an equipment which, with heavy trains comparatively few in number, would give the highest load-factor consistent with good railroading; and on the part of the Montana Power Company to prevent excessive peaks which might cause serious voltage variations and require the installation of excess generating apparatus to take care of the railway load. The power company was also very desirous of obtaining means by which the total power supplied to the railroad transmission line at a number of different points, over a distance of 220 miles, could be accurately recorded at one place and on one meter; to replace the former practice of having laboriously to add up records of as many as five curve-drawing meters, which are somewhat difficult to synchronize as to time, in order to obtain proper peak load data upon which to base the price of power. It is, therefore, very evident that the accomplishment of these results is of great mutual advantage and benefit to the railway company and the power company.

The 220-mile Rocky Mountain division was selected for the first installation as being the most difficult section due to the five feeding points and the heavy grades with regenerative braking. The apparatus was designed, built, installed, and tried out on service on this section before going ahead with similar equipment for the 220-mile Missoula division which has only two feeding points.

The equipment for the Rocky Mountain division as first installed was based on metering the power at the five feeding points (Two Dot, Josephine, Piedmont, Janney and Morel substations), but was later changed to meter the power at the low-tension side of the motor-generator set step-down transformers. This change was decided upon by the two companies concerned as it was found impossible to prevent the transfer of very large blocks of power from one of the power company's lines to the other lines through the railway company's transmission line at times of switching or line troubles with resultant losses not correctly chargeable to the railway company, added duty to the metering equipment due to the necessity of adding and then subtracting this power, excess meter capacity, etc. The Missoula division with only two feeding points did not have these objections and power for this division is metered on the high-tension side.

The despatcher's office is located at Deer Lodge, Mont., the center of the 440-mile electrification, and all the indicating and recording apparatus for both divisions is installed in the despatcher's office at this point.

The complete system comprises the two separate and distinct functions of limiting the maximum power demand at the will of the train despatcher and of indicating and recording the total net power at all times. The combination of these two functions accomplishes the following results:

(1) Independent of the number of feeding points, it indicates to the train despatcher at all times the total net

amount of energy being delivered to his division and it makes a permanent record for future study and as a basis for power bills.

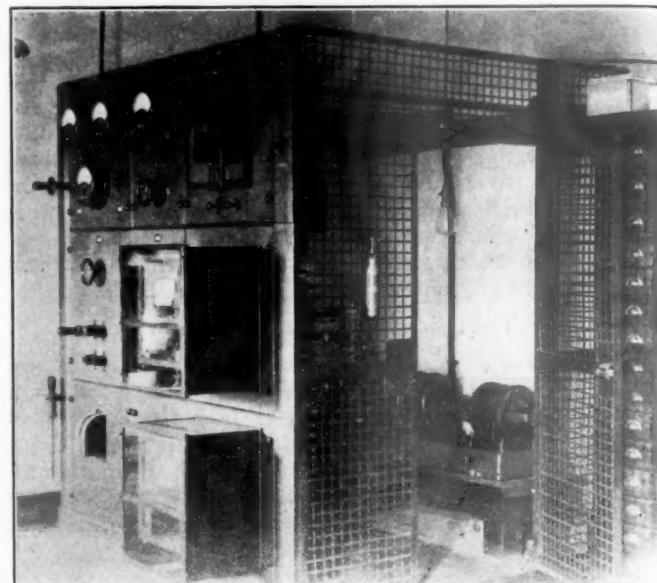
(2) It automatically deducts regenerated power if returned to the power company's lines or transfer of power from one line to another over the railway company's transmission line.

(3) It automatically limits the amount of power supplied to the division by lowering the trolley voltage and slowing down the trains so that the maximum peak load on the system cannot exceed a certain predetermined maximum.

(4) Its maximum limit can be changed instantly, easily, accurately and directly by the despatcher at any time without any necessity of notifying substation operators.

(5) It is capable of reducing the peak power demand by 30 per cent.

(6) If desired, the equipment can be adjusted so that the lightly loaded substations will not be affected, thereby pro-



Power Limiting and Indicating System in the Despatcher's Office, Deer Lodge, Montana

viding the highest possible voltage for the operation of passenger trains.

(7) If desired, the equipment can be adjusted to reduce the voltage on the heaviest loaded substations at the time of peak demand (above the maximum limit) slightly in advance of the other stations, thereby tending to equalize the load on all the stations.

(8) If an excessive demand for power occurs near any one substation, the voltage of the nearest substation is automatically lowered without affecting the voltage of the other substations, dividing the load between this substation and the stations on either side.

(9) The total power fed in at any point or transferred from one power line to another or the amount returned due to regeneration can be easily taken care of by a change in the ratio of the current transformers or by an adjustment of the wattmeter rheostats.

Preliminary negotiations between the railway company, the power company, and the manufacturer were completed in November, 1915. The equipment was completed and installed for the first division in 1917, and has been in successful operation since that time. The equipment for the second or Missoula division has been installed and is now in operation.

CALAMITY HOWLING never helped a good cause, and that is what the railroads are, no matter whether they be operated by the government or by the private owners.—*Clarksburg (W. Va.) Express.*

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Handling Heavy Oils at Locomotive Fuel Stations

Tanks and Pipe Lines Must be Heated to Obtain Necessary Fluidity in Service Installations

By J. L. Starkie

Office Engineer, Gulf, Colorado & Santa Fe, Galveston, Tex.

THE HIGHLY VISCOUS NATURE of the heavy Mexican oil recently introduced as fuel for locomotives on the railroads in the Southwest imposes a problem in the handling of this oil at the fuel stations which is entirely different from that which is encountered in the distribution of the more fluid oils which have been used in the oil producing states of the Southwest for several years. These residue oils which remain after the more valuable fractions have been

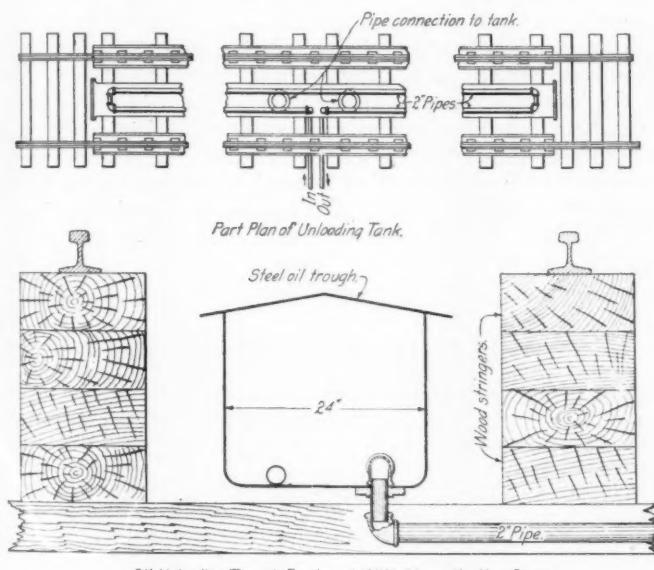
ducts. Mexican oil played a very important part in the successful conclusion of the war for the United States and her allies, by supplying the American and British navies with fuel at a time when the supply which could be secured from other sources was scant.

A number of Texas railroads have made contracts with production companies for this heavy Mexican oil for use as locomotive fuel. These lines include the Gulf, Colorado & Santa Fe, the Texas & Pacific and the Missouri, Kansas & Texas. The Southern Pacific Lines, the San Antonio & Arkansas Pass and the Gulf Coast Lines are already users of this kind of oil in their locomotives and were pioneers in installing equipment for heating, handling and distributing it. The other roads mentioned are now engaged in planning and installing facilities on their lines for similar purposes. This work divides itself into two classes:

- (1) The construction of entirely new fuel oil facilities required on roads heretofore using coal for locomotive fuel.
- (2) The modeling of existing fuel facilities on roads now using light grades of oil for such purposes.

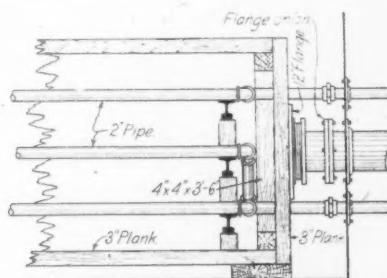
The work on the Santa Fe comes within the second head and a brief description of what is being done on that road follows:

The producing company supplying the Santa Fe has its own storage, docking and loading facilities at Tampico and operates its own tank ships, but as the contract provides for

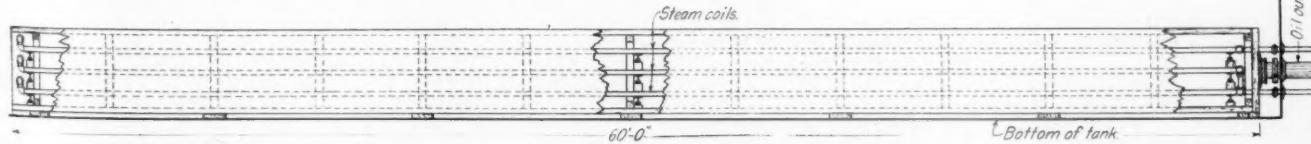


Details of the Unloading Trough and Manner of Heating

removed by distillation have a comparatively high gravity and no difficulty is experienced in handling them without the assistance of heat, even at the winter temperatures encountered as far north as central Oklahoma. But the railroads that are using the heavy Mexican fuel oil, even when located geographically so as to avoid extremes of winter, have found it necessary to heat the oil for its transmission from the oil cars to storage tanks and from the storage tanks to the service



Detail of Fittings at Outlet End.



Heater Box Placed Inside Oil Storage Tank So That the Oil Is Heated Only as It Is Withdrawn

outlets. This is a problem which embodies a number of interesting phases.

Oil produced in the Mexican fields south of Tampico has a very small content of light volatile oils, and is of a low gravity (12 to 17 deg. Baumé). The Tampico fields were developed and are operated extensively by American companies. Since the close of the European war, the possibility of the increased assignment of shipping facilities to the oil traffic and a slackening in the demand for oil for war purposes, has led these producers to seek American markets for their pro-

duction f.o.b. cars at Galveston, it was necessary for the producer to provide dock, storage and loading facilities at that port. These are under construction on harbor front property owned by the Santa Fe and are so far completed that ships are now discharging cargoes and the oil is being delivered to the railroad.

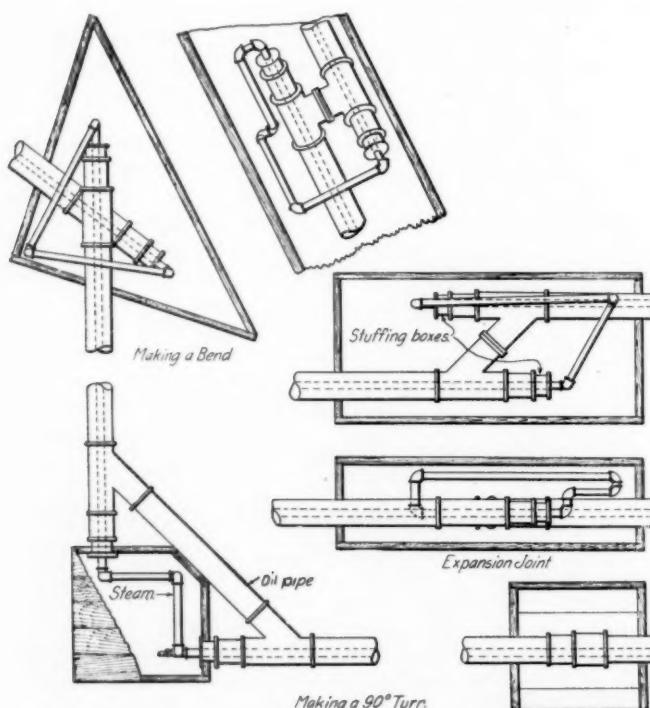
The first feature of the railroad facilities for handling the oil which needed modification in order to substitute the heavier material embodies the facilities for receiving the oil from the tank cars. The Santa Fe's equipment for this con-

sists of unloading tracks accommodating from 3 to 10 cars each, depending upon the importance of the station. The rails of these tracks are set up on several courses of wooden stringers to accommodate a long steel trough which receives the oil directly from the tank cars, this track and trough being sloped slightly towards one end which is connected with an underground receiving tank of about 9,000 gal. capacity. This tank is placed lower than the trough to draw off the oil by gravity as fast as it runs into the trough.

In order to obtain sufficient fluidity to secure prompt emptying of the tank cars, one or more steam cranes are provided at each station for jetting live steam directly into the heavy Mexican oil which, at 65 deg. F., is extremely viscous and of a consistency very much like that of very heavy molasses. From 30 to 40 min. application of a one-inch steam jet, however, is usually sufficient to secure the necessary rate of flow.

To get the desired flow of this oil in the receiving trough, it is necessary to equip it with a double line of two-inch steam pipe extending practically the full length, while to obtain the necessary fluidity in the underground storage tanks so that the oil can be readily pumped out of them into the main storage tank, these underground tanks must also be supplied with coils of two-inch steam pipe.

From the underground receiving tanks the oil is either



How Turns, Bends and Expansion Joints Are Handled When Steam Pipes Are Placed Inside the Oil Pipes

pumped directly to elevated delivery tanks or, at large stations, to 55,000-bbl. circular steel storage tanks. Ordinarily, if the distance is short to the delivery or storage tanks, it is not necessary to apply heat in the connecting pipe line, but where the distance is relatively great, steam lines of small diameter have been provided inside the larger diameter oil lines, which in some cases are being increased from 6-in. or 8-in. pipe, which were found satisfactory in handling the lighter oil, to 8-in. or 12-in. pipe.

The construction and maintenance of the oil pipe lines with steam pipe lines inside of them introduces a number of interesting problems, largely because of the necessity for providing adequately for the expansion of the inside and outside pipe lines independently of each other. The manner

in which this has been accomplished is shown in one of the drawings.

The 55,000-bbl. storage tanks are equipped with heating arrangements of such a nature that only the oil that is being drawn off is heated. To accomplish this, the storage tank is equipped with a long, horizontal wooden box 4 ft. by 4½ ft. in section, which extends from the side wall of the tank, at the point where the oil outlet pipe is connected, to about the center of the tank. This inner end of the box is open, so that all the oil which leaves the tank through the outlet pipe must flow the length of this box (approximately 60 ft.) before it reaches the outlet pipe, and by equipping this box with a series of coils of two-inch longitudinal steam heating lines the oil is effectively heated by the time it reaches the outlet. The construction of this box and the arrangement of the coils is shown in one of the drawings. The pipe coils and the box are weighted by means of relay rails which also serve as separators for the coils.

As the amount of oil required from the storage tanks varies from time to time and is usually a relatively small quantity as compared with the entire contents of the tank, the use of a box in connection with this coil will permit more rapid and economical heating, since it allows the drawing off of the heated oil in quantities as demanded, without waiting to raise the temperature of a considerable portion of the contents of the large tank, as is the case where open coils only are provided for heating. Small storage tanks, 24 ft. in diameter by 45 ft. high, are planned for the smaller stations, and box heaters 18 ft. long of similar design are to be put in them.

Accident Bulletin No. 72

THE INTERSTATE COMMERCE COMMISSION has issued its quarterly Accident Bulletin No. 72, giving statistics of railroad accidents in the United States in the months of April, May and June, 1919. The total number of persons killed in train accidents in the quarter under review was 77, and the total number of killed and injured on the railroads of the country from all causes was 35,886. The details are shown in the following table, in which the term "Other Persons" includes both trespassers and non-trespassers and "trespassers" includes some employees, this classification being followed in all of the tables. For example, of the 752 trespassers killed in train-service accidents, 44 are classed as employees.

CASUALTIES IN THREE MONTHS—APRIL, MAY, JUNE.

	1919		1918	
	Killed	Injured	Killed	Injured
In Train Accidents.				
Passengers	7	626	79	1,318
Employees	59	460	110	937
Other persons	11	38	26	134
Total	77	1,124	215	2,389
In Train Service Accidents.				
All classes	1,456	9,392	1,828	13,146
Total	1,533	10,516	2,043	15,535
In Non-train Accidents	117	23,720	127	28,184
Grand total	1,650	34,236	2,170	43,719

The bulletin gives the usual summaries of accidents of different kinds and the average number of each kind per million locomotive miles. In the quarter under review there were 1,423 collisions, and 3,432 derailments. The damage to railway property by these and miscellaneous train accidents, amounted to \$4,828,830.

Seventeen pages of the bulletin are filled with reports of investigations of train accidents which were completed by the Bureau of Safety during the quarter ending June 30, 1919; eight collisions and eight derailments. These reports contain many illustrations of how not to run trains with safety and some of them make interesting reading, notwithstanding the fact that they are about a year old.

For example, on the Chesapeake & Ohio, near Prince, W. Va., on April 26, 1919, a train of empty passenger cars ran off the track at a derailing switch at the end of double track, the locomotive was overturned, and two employees were killed. The inspector believes that the engineman was misled by lights in a signal cabin which were so arranged that he thought that he had a clear signal indication when in fact the signal was against him. The derailment occurred at about 5:43 a. m. and the signal light is believed to have been quite dim. The report refers to the use of green for the night proceed indication as "standard practice." It does not say that with a green light the derailment would have been prevented, but merely that "it is possible" that it would not have occurred.

The lamp in the distant signal was not burning and the testimony as to the lamp in the home signal seems to be unreliable. The report does not indicate what degree of daylight prevailed at the time of the derailment. The approach to this point was on a curve to the right and the two white lights in the tower could be seen from a point back of the distant signal, whereas the light in the home signal could be seen by an approaching engineman for only a few hundred feet.

The report says nothing about the engineman and it is to be assumed that he was one of the two employees killed.

A butting collision of electric cars on the line of the Union Traction Company of Indiana, near Carmel, Ind., on June 13, 1919, resulting in the death of two passengers, was due to careless handling or misreading of orders received from the train despatcher by telephone and, according to the re-

despatcher declared that he had made no change or correction of any kind. Another despatcher, off duty, heard the order given, and testified that no corrections were made. The report seems to indicate that orders for meeting points are made without complying with the rule that such orders should be in the same words to both trains.

The conductor at fault appears to have admitted that he had made a blunder and afterwards to have denied making the admissions and the weight of the evidence, according to the report, is that the pencil change in the order was made by the motorman and the conductor, after the collision, in an effort to evade responsibility. As to the automatic block signals it appears that only one maintainer is employed to take care of 122 signals on 99 miles of line. Signals were inoperative so frequently that orders from the despatcher directing trains to disregard them were very frequent, 59 such orders having been issued on the day of this collision. Large numbers were found in the records on other days. Several train orders were discovered on file in the despatcher's office which bore alterations in both serial and train numbers.

A Self-Clearing Hopper Car Built Exclusively for Grain Service

IN THE CONSTRUCTION of freight cars there is apparently a tendency to adapt them to carrying a wide variety of lading. It is therefore interesting to note that the Canadian Pacific has recently built a large capacity hopper car which is



Canadian Pacific 75-Ton Hopper Grain Car

port, "a contributing cause was the failure to maintain block signals in proper condition." In this case a conductor took a train order by telephone and claimed that after writing "335" as the number of a train which was to be met he changed it to "331" by direction of the despatcher. The motorman to whom he said he explained the change corroborated the conductor's testimony and both men claimed to have repeated the order to the despatcher as changed, yet the

designed to handle but one commodity, grain. This car was constructed to determine by actual service test the net advantages to be obtained from a grain-tight self-clearing car of maximum tonnage capacity, as compared to standard box cars of ordinary capacity.

The limiting tonnage adapted as the basis of the design is the maximum capacity of four M. C. B. axles having 6-in. by 11-in. journals. The length was determined by the dis-

tance from center to center of unloading hoppers in the modern elevators at Montreal and West St. John, there being one elevator having hopper centers spaced 48 ft. The height was determined by the actual cubic space required to contain the full load of wheat, plus an allowance of at least 12 in. on top to permit of full load being placed in the car without trimming. To meet this condition it was necessary to make the height at the eaves 13 ft. The width at the eaves is 10 ft. 3 in.

The car is all-steel with the exception of the running board and the ridge on top of the center sill. The general design is practically the same as is commonly used for coal cars of equal capacity, except that this car is built with a steel roof. The roof is provided with three hatch openings on each side of the running board.

The hoppers are arranged four on each side of the center sill. The hopper openings are purposely made relatively small and the frame and slides are machined and carefully fitted. The slides are opened and closed by a rack and pinion arrangement and are locked by means of a sealing pin passing through the slide and hopper frame. The trucks are of the Vulcan type built to U. S. R. A. dimensions. The light weight is 59,700 lb. making the allowable load limit 150,000 lb.

The car having given satisfactory performance on its initial trip between Port McNicoll, Ontario and Montreal, it has been placed in regular service between the same port and West St. John.

Fuel Supervision Pays on the D. & R. G.

DURING THE YEAR 1919 the Denver & Rio Grande in its full bill saved \$386,000 and \$520,000, respectively, as compared with 1918 and 1917. This saving represents 9½ per cent as compared with 1918 and 12½ per cent as compared with 1917. A definite organization for the purpose of inspection, accounting, handling and conservation of fuel was formed in August, 1918, and a noticeable improvement was effected in fuel performance during the balance of that year. However, not until 1919 was the full value of this organization secured.

The operating and fuel statistics for the years 1919, 1918 and 1917, on which the calculation of the above savings are based, are as follows:

	1919	1918	1917	Saving (tons)	
				1918	1917
Gross ton miles (thousands)	4,066,830	4,647,379	4,873,967		
Tons coal consumed.....	559,494	711,888	756,992		
Pounds per 1,000 G. T. M.	275.1	306.4	310.6		
Saving 31.3 lb. per 1,000 G. T. M. ....	.....	.....	63,646		
Saving 35.5 lb. per 1,000 G. T. M. ....	.....	.....	72,186		
Pass. train car miles.....	19,019,317	16,962,828	20,720,558		
Tons coal consumed.....	207,758	215,903	277,255		
Lb. per pass. train car mile.	21.8	25.5	26.8		
Saving 3.7 lb. per car mile. ....	.....	.....	35,185		
Saving 5 lb. per car mile. ....	.....	.....	47,548		
Switching loco. miles.....	1,749,108	1,882,993	2,109,569		
Tons coal consumed.....	122,910	135,519	159,226		
Lb. per loco. mile.....	140.5	143.9	151.0		
Saving 3.4 lb. per eng. mile.....	.....	.....	2,973		
Saving 10.5 lb. per eng. mile.....	.....	.....	9,182		
Work service loco. miles...	326,089	365,580	357,150		
Tons coal consumed.....	20,716	22,792	23,904		
Lb. per loco. mile.....	127.1	124.7	133.9		
Loss 2.4 lb. per loco. mile.....	.....	.....	391		
Saving 6.8 lb. per eng. mile.....	.....	.....	1,109		
Total saving 1919 over 1918.....	.....	.....	101,413		
Total saving 1919 over 1917.....	.....	.....	130,025		
Deduct account of adjustment in charges involving an amount for which credit cannot be taken.....	.....	.....	4,748		
Total net saving 1919 over 1918.....	.....	.....	96,665		

At a cost of \$4.00 at the furnace door, the saving for 1919 over 1918 was \$386,660, and for 1919 over 1917, \$520,100. In addition there was released during the year for revenue purposes, 2,600 cars, or an addition of about 2,600 car days,

which, at a minimum value of the per diem rate, represents a saving of \$15,600.

The fuel saving is almost entirely the result of increased and constant supervision along the following lines:

(1) Activities of an adequate field force of traveling engineers and firemen, devoting attention to train movements, reporting mechanical defects on locomotives, instructing engineers and firemen in team work, better locomotive handling, good firing practices and proper schooling of new firemen before entering the service.

(2) Better terminal regulations, such as avoiding firing up engines before required for use, and eliminating the overloading of tanks.

(3) Developing and maintaining interest in fuel conservation by holding monthly meetings and instructions at division terminals.

Fuel consumption was also decreased to some extent by the application of superheaters, table grates, shields on tanks to prevent gang-way losses, and closing the openings in coal racks on tanks to prevent the loss of the fines in mine run coal. Further decreased consumption is anticipated for the future by closer supervision of fuel inspection at the mines and inspection of equipment set at the mines for loading. Another source of saving, the particular value of which was an object lesson in general cleanliness, is the constant attention to the cleaning up of coal scattered under and around coal chutes, shops, and in train yards.

The widely varying operating conditions under which this decrease in fuel consumption was obtained may be illustrated by the variation in ruling grades on this system which run from 0.5 per cent to 7 per cent, and the variation in locomotive capacity which ranges from narrow gage locomotives of 13,000 to 27,500 lb. tractive effort to standard gage locomotives of the Santa Fe and Mallet types with 90,000 and 101,000 lb. tractive effort, respectively. The narrow gage locomotives make 16 per cent of the system locomotive mileage, but handle only 4 per cent of the system tonnage.

During the summer season of 1919, the Denver & Rio Grande stored 145,000 tons of coal. Arrangements were made to have straight mine run coal screened so that eight-inch mine run could be used for current requirements and the lump coal which passed over the eight-inch screen placed in storage. This afforded a very high percentage of lump coal in all storage piles and as a result, when used six months after being placed in storage, very little deterioration had taken place. The stored coal was as good as the average mine run received at the mines, except for a small mixture of snow and dirt picked up in the re-handling from the piles.

The storage coal was almost entirely consumed during the months of November and December, 1919. For November about 40 per cent, and for December about 60 per cent of all coal consumed was storage coal, and even with this large percentage of storage coal a substantial reduction in fuel consumption was secured, amounting approximately to nine per cent and eight per cent, respectively, as compared with November and December, 1918.

NO SCHEME of political appointment has ever yet been devised that will replace competition in its selection of ability and character. Both shipping and railways have today the advantage of many skilled personnel, sifted out in a hard school of competition, and even the government operation of these enterprises is not proving satisfactory. Therefore, the ultimate inefficiency that would arise from the deadening paralysis of bureaucracy has not yet had full opportunity for development. Already we can show that no government under pressure of ever present political or sectional interests can properly conduct the risks of extension and improvement, or can be free from local pressure to conduct unwarranted service in industrial enterprise.—*Herbert Hoover in a New York address.*

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Reports of Sections of the Division of Operation

Police; Telegraph; Engineering Tests; Health and Medical Relief; Administration

ON JANUARY 1, 1919, the Secret Service and Police Section was created in the Division of Operation and W. J. Flynn was appointed chief. Prior to that date the secret service was in the Claims and Property Protection Section, Division of Law, under Mr. Flynn as chief, but on that date it was abolished. On July 1, 1919, Mr. Flynn resigned as chief of the Secret Service and Police Section and R. S. Mitchell was appointed as his successor, and is still chief. This section with 21 inspectors and 10 operatives has been co-operating with the special service and police departments of the railroads in efforts and plans to prevent stealing and pilfering from the carrier and arresting and prosecuting all parties accused of offenses against the carriers.

The following tabulation gives a result of the combined efforts of this section and special service and police departments of the carriers, assisted by city, state and other federal officers from March 26, 1918, to September 30, 1919.

ARRESTS AND CONVICTIONS

Arrests for theft.....	21,681
Employees arrested.....	8,133
Others (not employees).....	13,548
Pending.....	6,213
Convictions.....	14,224
Dismissed, paroled and suspended.....	3,461
Fines imposed.....	\$271,685.41
Approximate value of property stolen above arrests.....	1,678,638.55
Approximate value of property recovered above arrests.....	1,322,718.34

The experience gained in this work shows clearly the need of a statute making evidence that the goods alleged to have been stolen from a carrier handling interstate freight prima facie evidence that the stolen goods were interstate shipments. At present proof of the interstate character of freight too often requires bringing many witnesses from distant points for a trial. This is not only expensive but it also operates to prevent prosecution and convictions.

Telegraph Section

The principal subjects engaging the Telegraph Section during the year have been:

(a) The use of railroad wires instead of commercial wires was continued and increased, resulting in substantial savings in expense for telegraphing. This result was obtained without leasing any telegraph wires.

(b) The supervision of messages actually sent over commercial wires by the Railroad Administration and the railroads, and the making of the most economical arrangements practicable for handling.

(c) Efforts to reduce the length and number of telegraphic communications, as contemplated by Circular No. 61 of the director general, were continued with beneficial results.

(d) For economic reasons a few additional combinations of telegraph and telephone offices were made.

(e) Attention was given to the proper maintenance of the telegraph and telephone facilities of the railroads.

(f) A large amount of time was spent and a great deal accomplished by the section in the work of developing telegraph and telephone standards in conjunction with the telegraph and telephone division of the American Railroad Association.

(g) A study of the contractual relations between the commercial telegraph companies and the railroads was continued and finished. This study was originally undertaken with a view of obtaining information for use in making a

general agreement between the commercial telegraph companies and the railroads. This purpose was finally abandoned. A report of this study has been furnished to the Division of Operation for reference purposes.

(h) Certain miscellaneous telegraph and telephone subjects of general benefit to the railroads were considered and given such attention as their importance warranted.

In the above work the telegraph representatives of the different regional directors appointed last year continued to co-operate with and help the Telegraph Service in its work of supervising the telegraph and telephone facilities of the railroads under federal control. A small decrease was made during the year in the organization of the Telegraph Section at Washington. The organization has been under the direction of Martin H. Clapp, manager.

The sending of telegraph messages of the Railroad Administration and the interchange of messages between the different railroads over the wires of the railroads in place of using commercial telegraph wires was continued with gratifying results. It was not thought advisable, under the circumstances, to attempt to organize a complete and comprehensive national railroad telegraph system, as such a system would have necessitated the establishment of telegraph offices and distributing centers and radical rearrangements of wire facilities at different points in the United States. A great deal toward this end proved to be practicable through adapting the existing telegraph offices and wire facilities to provide facilities for the general interchange of telegraph messages between the director general, the regional directors, the federal managers and the different railroads. Additions were made to the telegraph circuits terminating in the telegraph offices of the Railroad Administration at Washington and different points in the regions. Considerable was accomplished in improving the administration circuits obtained last year, most of the circuits used at present being obtained by superimposing the telegraph circuits on existing telephone wires. While the obtaining of these circuits necessitated a considerable amount of planning and installation of apparatus at different points, the total cost was small. A total of 10,672 miles of wire was provided from existing wire facilities of the railroads for the handling of the telegraph messages of the director general and his staff. In addition there were also 10,021 miles of wire used by the different regions and railroads in the interchange of telegraph messages. All these wire facilities were obtained without the leasing of telegraph circuits from the commercial companies. Having in mind that the railroads in this country are not in general oversupplied with telegraph and telephone facilities, it is believed that the results from these existing wire facilities for the use of the Railroad Administration and the railroads without the leasing of commercial circuits is indicative of the caliber of effort made by the Telegraph Section.

During the year there was an increase in the number of messages handled over railroad wires. It is possible only to approximate the amount of this increase. Normally there are at least 150,000,000 messages handled annually on railroad wires. It is estimated that the number of messages handled during 1919 increased approximately 10 per cent as compared with the messages handled during 1918. It is further estimated that a considerable amount of this increase was due to the increased interchange of messages between the different railroads. This increased use of railroad wires is very clearly reflected in the increase in the number of messages handled in the administration telegraph office at Wash-

¹ Preceding articles giving matter from the annual report of the Division of Operation were printed in the *Railway Age* of March 12, page 759, and March 19, page 949.

ington. The increase in this office of the total number of messages handled in 1919 over 1918 is about 150 per cent. Further, about 40 per cent of the messages handled were relay messages; in other words, messages interchanged between the different regions and railroads. As these latter messages otherwise would have been sent over commercial wires, this increase in service secured from the railroad wires meant a considerable saving in expense to the administration and the railroads.

The supervision of the cost of telegraph messages sent over commercial wires was continued during the year and very satisfactory results obtained. This work is closely allied with the work outlined in the preceding section of arranging for the use of railroad wire facilities instead of commercial wire facilities.

In a number of cases of considerable use of commercial wires it was found cheaper to handle the messages over them, due to the fact that it would have been necessary to put on additional help in order to handle them over railroad wires. If, however, the messages could be readily delivered to and received from an existing railroad telegraph office where the average operating cost in general is about five cents per message, there usually was no question as to the most economical plan to follow.

The total amounts of the tolls of the messages sent by the Railroad Administration for the first eight months of 1918 and 1919, were \$431,724.87 and \$212,555.29, respectively, the business of August, 1919, being the last month available. These amounts indicate a decrease in the cost of commercial telegraphing of nearly 51 per cent in spite of the fact that the telegraphing of the administration has increased during the year, as has already been shown.

The reduction of the use of commercial wires by the individual railroads was a very difficult matter to handle, due to the complicated contract situation between the railroads and the telegraph companies. Of course, in those cases where the railroad company paid full commercial rates for its telegraphing there was no question as to the action to be taken. Where the railroad had a substantial unused free allowance there was also very little question except that the element of service had to be considered. Where the free telegraphing allowance was liable to be exceeded during a contract year and part of the telegraphing charged free and part at half or full rates, the situation had to be considered carefully by the railroad involved.

The following are the general policies that were followed by the Telegraph Section in connection with the use of the wires of the commercial telegraph companies by the Railroad Administration and the different railroads under federal control:

(a) Messages to and from the offices of the Railroad Administration, including the regional directors, were, when practicable, handled over railroad wires, the cost of handling being considered.

(b) Railroads having no free telegraph allowances sent their messages to other railroads on railroad wires when practicable, cost and relay and delivery service considered.

(c) Railroads having unused free telegraph allowances sent their messages to other railroads over commercial telegraph wires, the probable cost of handling these messages on railroad wires and service conditions being taken into consideration.

Efforts during the year were continued to reduce the length and number of telegraphic communications by means of censoring and by the use of the symbol system and traingrams, as contemplated by General Circular No. 61 of the director general. A symbol system was adopted. While no general traingram system was sent out, the railroads having such systems were encouraged to use them. It is believed that considerable was accomplished by the efforts of the section in

its endeavor to reduce the length and number of telegraphic communications.

Attention was given to the maintenance of the telegraph and telephone wires and apparatus of the railroads with a view of maintaining the plants up to their previous standards.

On January 10 the director general issued General Circular No. 70, stating that the scope of the American Railway Association had been enlarged and its name changed to the American Railroad Association, and that it would cover during the period of federal control of the railroads the former activities of a number of the railroad associations, the Association of Railway Telegraph Superintendents, in which the Telegraph Section is primarily interested, being one of the associations included. The Association of Railway Telegraph Superintendents, in compliance with this circular, arranged to transfer its activities to the telegraph and telephone division of the American Railroad Association and the manager of the Telegraph Section of the administration was elected chairman of the newly created division. In this position and with view of carrying out the general plan contemplated by Circular No. 70, it was arranged as far as practicable to work out and develop practically all of the telegraph and telephone standards necessary through the Telegraph and Telephone Division.

Recommendations.

(a) More attention should be given to the maintenance and betterment of telegraph pole lines and wires.

(b) The work begun in connection with the telegraph and telephone standards should be continued by the telegraph and telephone division of the American Railroad Association.

(c) The railroads should make greater use of telephone facilities.

(d) The organizations of the telegraph departments of railroads should be given attention with view of making them more uniform and complete.

(e) There are certain subjects mentioned in this report which have been considered either completely or in part by this section which should be referred to the telegraph and telephone division of the American Railroad Association for its consideration and possible use in its future work.

Inspection and Test Section

The Inspection and Test Section has been continuously under the direction of C. B. Young, manager.

The section has been engaged since its establishment, primarily in inspecting materials entering into the construction of 100,000 freight cars and 1,930 locomotives, as well as supervising the construction of this equipment. Starting with material in its raw condition, as plain iron or timber, the section has given detailed attention to its manufacture, fabrication, and final evolution into freight cars and locomotives, which the committee on design believe to be the highest types now in the service of the public. On January 1, 1919, 12,680 cars and 743 locomotives on the general contract had been finished, and during the year 1919, 77,520 cars and 1,138 locomotives were constructed. The work has been under way at 28-car building plants and 8-locomotive building plants. The materials entering into the construction of this equipment have been manufactured in all parts of the country from Laconia, N. H., on the east to Portland, Ore., on the west; from Milwaukee, Wis., on the north to Knoxville, Tenn., on the south. To handle this enormous inspection of material and construction it was necessary to enlist the services of both the scientific forces and the practical expert mechanics of a large number of railroads, over 700 men lending their aid to the section during the time of greatest activity. The central office in Washington organized to direct inspection and inspection forces consisted of 44 employees as a maximum.

In addition to the work outlined above, various other activities were taken care of by the section.

The following specifications for material have been written:

Adapted to United States Railroad Administration work from the standards of various technical societies.....	45
Written new from various data already available or secured for the purpose.....	21
Tentative requirements for various articles issued for temporary use.....	3
Presidential committee specifications for illuminating oils and gasoline, reprinted for Railroad Administration use.....	5
Total specifications issued.....	74

The section has organized a committee of railroad chemists, which has formulated tentative specifications for 11 kinds of lubricating oils (in addition to those included above) for use on cars, locomotives, and shop machinery.

The section has also co-operated extensively in the work of the interdepartmental committee for the standardization of paint specifications. This committee has in hand the writing of specifications for various painting materials, which can be used by all departments of the government. Uniform specifications help toward more ready purchasing and lower prices.

It has taken a very active part in the beginning of what will be an important investigation in connection with the steel industry as related to the railroads, this being a study of the effect of impurities, especially sulphur, on the safety and service value of steel. The constant tendency is toward higher percentages of impurities, due to the depreciation in quality of raw materials.

In conjunction with the Bureau of Standards, the Inspection and Test Section has under investigation a very important line of work in the investigation of cast iron, which it is anticipated will shed new light on this subject and will be very helpful to the railroads of the country in the future, as it will enable a specification for locomotive parts to be made up with greater knowledge than has heretofore been available.

With respect to volume, the largest work of the material division of the section has been the inspection and testing of the material for the locomotives and cars purchased by the administration.

A test of various devices commonly used by railroads is under way, including the following:

DRAFT-GEAR TESTS. These tests include an extensive investigation into the action of new draft gears, together with such information of a reliable character as can be assembled on gears that have been in service.

There are 59 gears representing 18 different types in the test, and these gears are being carefully studied under such laboratory tests as the 9,000-pound drop, the compression machine, and rivet shearing tests. Their actions in actual service have also been studied and recorded by means of the car-impact plant of the T. H. Symington Company, at Rochester, N. Y.

The gathering of data in this test will shortly be completed and the extensive report is in the process of preparation and should be completed during the next few weeks.

All of the test work on draft gears is being done directly by the force of this section.

POWER REVERSE-GEAR TESTS. In this test we are making an exhaustive study of nine reverse gears, these representing all of the present commercial devices of this character. The test is well under way, but can not be completed for at least one year on account of the necessity of one year of service for each of the gears.

The results of these tests will not only demonstrate the merits and demerits of each of the reverse gears tested, but will also provide complete information for future designs and specifications.

The larger part of the test work on reverse gears is being done by the force of the Norfolk & Western Railway, and is

under the joint supervision of the engineer of tests of that road and the engineering staff of this section.

PNEUMATIC FIRE DOORS. This test is just being started on the Erie Railroad, and the program includes a complete study of fire-door action and a complete comparison of the various fire doors now on the market. There will be included in the test two each of four different doors, which represent all of the pneumatic doors offered for test.

This test also includes one year's service on locomotives, hence the complete report will not be available until at least one year from date.

This test work is being done by the force of the Erie Railroad, and is under the joint supervision of the engineer of tests of that road and the engineering staff of this section.

LOCOMOTIVE HEADLIGHT GENERATOR. This test is being started and the program includes complete headlight generators, and from the results of which it will be possible to write a specification as to requirements in this regard. From the results of the test it also will be possible to compare the merits and demerits of the various machines and to set a standard for future design. This test work is being done by the force of the Pennsylvania Railroad, and is under the supervision of the staff of this section working with the Pennsylvania Railroad forces. The importance of an impartial determination of the preferable draft gear and of locomotive headlight generators needs no comment. It is apparent that standards in these particular devices can be used by roads generally without incurring the disadvantages which sometimes come in other lines from attempting to apply standards of a rigid nature to physical conditions which vary and thereby forbid rigidity in their successful solution.

The section has also looked after the historical records of all of the cars and locomotives purchased by the administration and is sending out from time to time to the purchasing railroads the details of all specialties, devices, and standard parts entering into their construction, accurately listed, in order that such railroads may have full information concerning the construction of their equipment.

The section has also handled or is handling certain matters of less importance, which it is believed are for the general good. Its information has also been of service to certain roads which have not, through their own organization, been able to determine the preferable practice.

Committee on Health and Medical Relief

The committee established an office in Washington, D. C., but was unable to begin active work before the latter part of November, 1918, due to the prevalence of influenza over the country, the members of the committee being engaged in the work of combating this terrible scourge.

Since November 22, 1918, the committee has held frequent meetings; has had referred to it through the Bureau for Suggestions and Complaints a large number of complaints received from the general public concerning the unsanitary condition of stations, car shops, and toilets; this gave an excellent opportunity to investigate the conditions which patrons of railroads complained of and we were able in many instances to suggest a remedy; also handled a number of health conditions that confronted the Railroad Administration to a satisfactory conclusion; and reported from time to time upon questions submitted to it by the Railroad Administration.

In order to familiarize itself with railroad conditions in so far as they applied, the committee made surveys through questionnaires sent to all railroads under federal control, and inspected railroad sanitary and health conditions in 32 states. Upon knowledge gained during these inspections and data procured through questionnaires the committee has based its recommendations.

The committee recognizes that probably its best service is along the line of preventive medicine and preventive sur-

ery; it offers opportunity not only for humanitarian effort, but will make possible greater efficiency and lessened cost in operation. Typhoid fever, smallpox, malaria, and hook-worm are preventable from a practical standpoint; in fact, the continuation of these diseases should not be tolerated. Reconstruction surgery is in its infancy, opening up a great field for research and betterment in the care of the injured.

The medical and surgical departments connected with railroads offer unusual opportunity for the dissemination of information on these several subjects.

The following recommendations of the Committee on Health and Medical Relief have been submitted to the director, Division of Operation, and have been approved as recommendatory practice and ordered printed and distributed:

Railway Sanitary Code.

General and departmental rules governing physical examination of applicants for employment, promotion, and periodic examination in order to determine their fitness for service.

Recommendations concerning control of malarial fever.

Recommendations covering separation of claims and surgical departments.

Recommendations covering privilege of trip transportation for local surgeons to attend medical and surgical meetings and clinics.

Survey of inspection of rest houses, with recommendations.

Recommendations regarding practice of laymen being used to make vision, hearing and color examinations.

Model first aid kit, with directions for its use and maintenance and estimate of cost.

Dr. D. Z. Dunott has been in charge of the Section of Health and Medical Relief since its organization.

Labor Assistant

The labor assistant to the director of the Division of Operation acts as adviser to the director on labor questions involving submissions to the Board of Railroad Wages and Working Conditions and reports therefrom as differentiated from the assistant to the director of the Division of Operation who deals with labor problems not involving submission to the Board of Railroad Wages and Working Conditions. The labor assistant, also in conjunction with officers of the Division of Labor, advises the director general on general labor matters.

During the period from January 1, 1919, to December 1, 1919, there were received through the director general's office for review and analysis the following submissions of the Board of Railroad Wages and Working Conditions:

Interpretations	98
Recommendations	75
Miscellaneous dockets	31
Total	204

The interpretations submitted by the wage board are for the purpose of clarifying the language of the supplement and to definitely state the intent of the rules contained therein.

The recommendations are broader in scope in that they cover rates, hours of service, and working conditions for the classes of employees involved. In many cases exhaustive hearings are held by the Board of Railroad Wages and Working Conditions, and on the testimony given at such hearings the board formulates the recommendations. These recommendations are both general and local in character. The general recommendations cover classes of employees on all railroads in federal operation; also the American Railway Express and the Pullman Car Lines. The local recommendations cover individual classes, such as harbor craft, car ferries, longshoremen and dock workers, whose conditions of service are governed by local requirements that demand special treatment. The general recommendations are printed and distributed as wage orders; the local recommendations are not printed, but instead the interested parties are notified by letter.

The submission of the Board of Railroad Wages and Working Conditions, as well as other labor questions arising, are reviewed and passed on jointly by the labor assistant of the Division of Operations and an assistant of the Division of Labor. As the various questions involve all classes of railroad, marine, Pullman and express employees, the majority of the time of the labor assistant is taken up with conferences.

J. G. Walber has acted as labor assistant since January 15, 1919, when the position was given this definite title.

Assistant to Director

The assistant to director, Division of Operation, is charged with the duty of reviewing all matters in dispute between managers and employees, presented in writing to the director, Division of Labor, and, in conjunction with representatives of the latter, to give direction for final disposition.

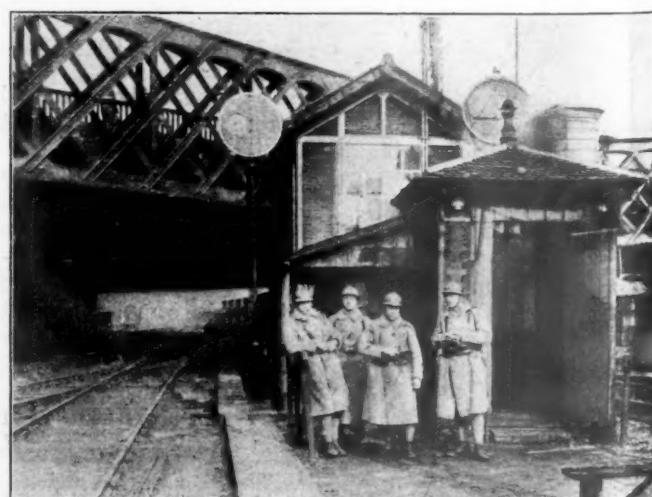
It is also his duty to represent the Division of Operation in deciding upon the merits of questions in dispute between managers and employees, which may not properly be transmitted to the Board of Railroad Wages and Working Conditions, or Railway Boards of Adjustment Nos. 1, 2 and 3 for decisions, and to hear such cases when oral testimony is offered, and to confer and communicate with railroad representatives and organization executives, and to conduct special investigations and perform such other duties as may be required by the director.

C. S. Lake has been assistant to director in charge of this work throughout the year. E. C. Manson has been associated with Mr. Lake in this work.

The report of the Division of Operation also includes the following:

Unnecessary Competitive Passenger Service

Prior to federal control very extensive and wasteful passenger-train service was maintained, for competitive reasons, between many of the large cities of the country. Under federal control and as a war measure it was found practicable to reduce the number of such trains materially, while at the same time distributing those retained over such hours of departure as to actually improve the service between the cities concerned. It is to be hoped that here also, when the railroads are again in private operation, a leaf may be taken from the experience of the Railroad Administration and very careful consideration be given to any proposals for the restoration of passenger-train service to see that the service asked for can be justified as reasonable.



The French Railway Strike. Troops Guarding a Bridge

The Relation of the Public to the Railroads*

The Duties of Organizations and Individuals to the Carriers Outlined and Explained

By Charles A. Prouty

Director of Valuation, Interstate Commerce Commission.

IT HAS ALSO COME to be universally admitted that the business of transportation by rail is of such underlying importance that the government itself must either provide this transportation, or see that it is provided by private capital under proper governmental supervision. In this country, in response to an overwhelming public sentiment, the railroads returned to private operation on March 1. I believe that conditions today are much more favorable to private operation than they have been in the last quarter of a century. Let me indicate some of the particulars in which *today* differs from the pre-war period.

First. The Interstate Commerce Commission is for the first time invested with the authority, and expressly directed by the statute, to protect and assist the carrier. In the past the principal function of the Commission has been to protect the public against the carrier, and such a protection, looking at the matter from the historic standpoint, was necessarily the case.

The present bill, which is the first piece of really constructive legislation since the Interstate Commerce Act itself, makes it the duty of the Commission to see that a fair value is placed upon the property which is devoted to the public use, and that sufficient rates are established to yield a suitable return upon that property. It gives the Commission power to protect carriers themselves from unreasonable competition with one another, to open up terminals, to distribute equipment, and, in short, to see to it that the whole transportation machine is conducted in the best interest of the public but always with an eye to the fair interest of the owner.

Second. The government has for the first time extended substantial financial assistance to our carriers while under private control. This has been done not only by way of the guaranty covering the first six months while carriers are readjusting their rates and operating conditions, which is only a measure of simple justice, but in addition, by the appropriation of \$300,000,000 to be extended under the direction of the Commission in providing adequate transportation facilities. This sum, of course, represents but a very small part of the total expenditure which will be necessary to provide such facilities, but it will enable the weaker roads which can not at this time finance themselves, to furnish their portion of such additions.

Third. For the last quarter of a century our railroads have been operated under a continuous increase in the cost of operation, particularly in the cost of labor.

For the next dozen years at least, the exact reverse is likely to be true. I do not apprehend any considerable decline, either in wages or in the price of materials for the next year, but it does seem altogether probable that present costs are abnormal and that the future will see a gradual decline. This from the financial standpoint is a factor of extreme importance.

Fourth. The attitude of the public toward our railroads has entirely changed. It has come to be understood that the railroad is a public servant absolutely dependent upon the will of the public for its existence. It has finally come to be appreciated that this servant can not render a proper service unless it is properly housed, and fed, and clothed. The

public as a whole is prepared to submit to whatever may be necessary to secure to this servant fair treatment.

These are the four conditions which occur to me as being the principal respects in which the future is likely to be more favorable to private operation than the past, and of these four infinitely the most important is the last. It is this change of heart upon the part of the public which has produced the change in the Act to Regulate Commerce and which has appropriated money from the public treasury in aid of our carriers. Public opinion will dominate future legislation and will produce a most active impression upon the administration of this day by the Interstate Commerce Commission.

The success of private ownership depends upon the attitude of the public and it behooves, not only every great body like the Chicago Association of Commerce, but every individual member of that body, to inquire what it, as an organization, and what he, as an individual, can do to help on to success the efforts of our railroads.

Duties of the Public to the Carriers

In what way can the public contribute to make private operation a success? What is the duty of the public to the carrier at this time when we are entering upon a final test of private operation? You who are the members of this association can approach the discharge of that duty from two standpoints:

First. You can act as an organization. You should first of all get into touch with the situation from the viewpoint of the carrier as well as your own. You can employ expert assistants who will up to a certain point advise you, but beyond that, the members of the association must stand responsible themselves.

Second. Even more important than the action of your association as a body is the attitude and the conduct of the individual member. You gentlemen are interested in particular rates and in particular service. Now apply to your demands for that rate and for that service the same rule of fairness and of equity which you as an association enjoin upon others. Ask nothing, take nothing other than you would approve in the case of your competitors.

Adequate Rates a Necessity

Having in mind now the fact that you gentlemen are to act through your association in part, and in part as individuals, what are the things for which you ought at this time to strive as good citizens in the public interest.

1. Your first and most important duty is to see that these carriers are allowed adequate rates.

The railroad industry is the greatest of all private industries, except agriculture, and yet, the private capital which is invested in it has no final control of where or how the railroad shall be built, nor of the way it shall be equipped or operated, nor can it determine a single charge which it shall make for the performance of its service.

The first requisite to the economical performance of a railroad is an adequate plant. Without proper facilities, a suitable road, adequate equipment, the service which you require can not be economically performed. Today, it seems to be admitted on all sides that very large sums must be expended at once in producing this plant. Now, I do not for one mo-

*Abstract of an address before the Chicago Association of Commerce at Chicago, April 7, 1920.

ment suggest that the rates to be allowed should be sufficient to provide for these additions. I have long believed that to keep these properties good in fact, the carrier should be allowed to earn and put into its property some comparatively small amount each year which should not be capitalized and should not be made the basis for increased earnings, but for the most part these additions and betterments must be provided out of money to be borrowed. The rate of interest at which these funds can be provided becomes a charge upon the property and, therefore, finally a charge upon the public. Unless, therefore, carriers can obtain this money, finally, at a figure approximating that which the government would pay, the public will not permanently consent to bear this additional expense.

The rate of interest at which money can be borrowed depends upon the confidence of the investing public. Just in proportion as the lender is certain that his loan will be repaid, will he accept a low rate. Today, railroad securities are not in favor and they will not be until the investing public is again convinced that a railroad promise to pay is absolutely good. This never can come to pass so long as our railroads are merely earning for the present 6 per cent upon their value. There must be some assurance for the future. The attitude of the government must be clearly defined. There must be above all some surplus fund upon which carriers may rely in a period of adversity.

Now, the intention of this bill was to provide exactly that safeguard. Nothing could improve railroad credit like a liberal attitude upon the part of the Commission which would enable carriers to accumulate something substantial for the first year or two in addition to their bare necessities. I believe, therefore, that if you desire to make private operation a success, your first thought should be to secure to carriers rates which are too high rather than too low. Congress has fixed the limit and that requirement must be observed, but in the administration of this law there is a wide range of judgment, a broad twilight zone, and my feeling is that the Commission should be encouraged by shippers to incline within this sphere of doubt toward a liberal allowance.

Personally, I have no doubt that this will result in the application of higher rates under private than would have been necessary under government ownership; but the question is not of the immediate present. We are inquiring whether in the long run private operation, or government operation, is the better. Most of us believe that private operation will be found more efficient than public, but this can not be accomplished unless a proper credit can be established and proper facilities provided. You believe that private operation will provide a better service than public, and if so, it may be better in the long run to pay a somewhat higher rate for the service.

Service Demands

2. Do not become impatient; at least do not talk.

Our railroads are resuming private operation under adverse circumstances. For over two years they have been deprived of the use of their property. Their organizations have been disrupted; their traffic has been diverted. New methods are in vogue, many of which are an improvement and will be retained, but a certain amount of friction and of inefficiency always accompanies a new thing. Time will be required for this new transportation machine to wear down its bearings.

The ordinary member of the public knows very little as to the adequacy with which railroads are handling their business. His information and that of the press comes largely from people like yourselves. If you criticize and publish every failure to give satisfaction, the opinion will speedily become current that our carriers have failed and public attention will once more be turned to the government for adequate service. You can be of the greatest assistance to car-

riers in these earlier days if you will overlook and excuse until it becomes apparent that the condition of inefficiency is permanent.

Restoration of Competition

3. Previous to government control there was in certain sections active competition between railroads. That competition produced a high class of service but resulted in unnecessary waste of transportation effort. Under the government this wasteful competition was cut out. Now one of the most essential duties of the shipper is not to demand a restoration of these former facilities, unless in the general interest they ought to be restored.

The Government Guarantee

Much is said about the guarantee which this bill gives to our railroads, but except for the first six months there is no guarantee. The law provides that rates shall be established which will yield to railroad property, as a whole, five and a half per cent upon its rate-making value for the next two years. After that, the percentage is left to the judgment of the Commission. The carrier may be permitted to earn an additional one-half of one per cent which must go into the property without being capitalized, or made the basis for an increase in rate-making value. Will any sane person contend that for the next two years six per cent is too great a return?

Let me illustrate my meaning by a reference to the past. Carriers are claiming that in determining the aggregate value upon which this rate shall be allowed the investment account should be taken. Assume for a moment that the investment account measures the value of these properties upon which this return is to be computed.

The preliminary report of the Interstate Commerce Commission for the year ending December 31, 1918, gives the investment account of Class I roads on common carrier property at something less than \$15,000,000,000. The so-called "test period" covered the three years ending June 30, 1917. The average investment account of Class I roads during that period could not have exceeded \$14,500,000,000. Six per cent upon that amount would be \$870,000,000, which is something less than the standard return. If the rates of our carriers had been so adjusted as to yield the maximum earnings permitted by this law during the test period, they would have been not higher, but slightly lower than they were in fact.

This plan does not increase transportation charges. It should in the long run diminish them. It does more fairly distribute the earnings of our carriers. It infuses into the financial condition of those carriers the element of certainty which is the foundation of all credit. It affords a reservoir into which surplus earnings may be poured in good years and out of which something may be drawn in poor years. It provides in a measure at least for those permanent additions to the property which do not add materially to its earning capacity and should maintain the property as a whole.

Looking to the more distant future, your duty will be if private operation continues, to see to it that rates are not too high. If the private owners of this public property can not render an adequate service for as little compensation as that service can be provided by the public, then the properties will pass to government operation. You gentlemen might not favor this even in that event, but a majority of the voters of this country will.

I am addressing what I say to the present exigency. We have just emerged from the most destructive war of the ages. All business and economic conditions have been upset. The owners of those properties renew their operation under the most disadvantageous circumstances. This being so, private operation can not be given a fair chance unless the public is prepared to treat its railroads during this critical period with all the liberality which the law allows.

The First Meeting of the Institute of Transport

Sir Eric Geddes, Minister of Transport, in Presidential Address, Discusses English Problems

THE FIRST MEETING of the Institute of Transport which has recently been formed in England was held on March 22, and Sir Eric Geddes, Minister of Transport, the first president of the Institute, presented his inaugural address. The formation of this Institute has been previously noted in these columns and the membership at the time of the meeting was approximately 350 members and associated members.

Sir Eric Geddes chose as his subject "Transport in Relation to the State." He laid particular stress on the fact that under the changed conditions it is impossible for any of the transport agencies of the country to live under their pre-war revenue. He strongly advocated greater unification of existing lines with more government control and less

beating their 1913 record, which was the highest possible standard. "In the Port of London," he said, "where the so-called chaos is worse, those engaged in transport may congratulate themselves on exceeding both in imports as well as exports the 1913 records."

Never before in the history of the country has the public so fully comprehended its position and dependence upon transport as at the present time. The war was the reason for this, for it was at that time that the public realized how important an adequate transportation system was to them. "In spite of the fact that the railway property was owned in this country by the small investor and despite the fact that the return on capital had always been a modest one, generally speaking, the railways," he said, "had figured in the minds of the people as a bloated capitalist organization, an object not of sympathy but of suspicion and of jealousy."

In commenting on the private control of railways in both England and the United States, he said, "that as soon as the railways grew out of their elementary state and were no longer considered as merely turnpikes or public highways, competition between the railway companies was used as a means of securing adequate public service and legislation, gradually followed to correct the evils accompanying it. Even before the war," he said, "this system was breaking down and the idea of unbridled competition was giving place to an idea of regulated monopoly. It was gradually becoming recognized that state control had to be administered rather than legislative and judicial."

In commenting on America's recent action of turning the roads back to their private owners on March 1, he said: "The United States unhampered as we were with an agreement to retain control of the railways and guarantee their net revenue for two years after the conclusion of the war—have said to the companies: 'We will enable you to earn a living wage on your capital and we will adjust rates in order to enable you to do that, but in return we propose to see that you are operating in the best interests of the community and to give you certain orders as to what from time to time a competent body decides you must do.'

In commenting on what other nations have done in an endeavor to improve the railway situation, he called attention to the fact that from April 1, all the German railways will be unified under a single federal system; that in France arrangements are being considered for the increase of governmental control; that in Canada, with the exception of the Canadian Pacific, the railways are under the jurisdiction of the Canadian government as the sole shareholder because the companies had been unable to carry the burden the government encouraged them to assume; that in Belgium and Switzerland, state railways were formed to prevent foreign capital obtaining control of them; that in Italy the state took control of the railways in order to get away from the entanglement of badly drawn leases; that in Japan, state ownership came about in order to terminate concessions to the private companies which prevented a reduction of rates; that in Australasia and, in the early days, in East Prussia because the railways were necessary and private capital could not build them, and that in Germany, in 1870, in Russia and in North West India, the state took over the railways primarily for military reasons. In other words, no country had ever adopted governmental ownership for theoretical reasons.

It was not the purpose of Sir Eric to enter upon a dis-



Sir Eric Geddes, Minister of Transport and President of the Institute of Transport

drastic competition. He believes the state should have power to reduce operating costs in every possible way and that full and detailed statistics should be made public in order that the public may have a more accurate idea of the problems of the nation's railways. Throughout his address he hinted strongly of drastic measures that should be taken regarding greater standardization and hinted that there is much to be done in the matter of electrification of the English railroads. The following is an abstract of his Presidential address:

Sir Eric Geddes' Address

In commenting on the "chaos" which the politicians claim exists on the English railroads today, Sir Eric said that the transport facilities of Great Britain are well on their way to

cussion for or against state ownership but he merely desired to point out what had been done, and call attention particularly to the fact that after two years of experience in governmental operation of the railways of the United States, it was almost unanimously decided, in that country, to return the roads to private management and that with the new law passed in that country the relation between the government and the companies has been strengthened and improved.

In commenting on the conditions in England, he said, that while this country was the first to develop modern transport it had been the last to recognize the intimacy of the relation between the transport agencies and the public welfare.

In commenting on the new arrangements that must now exist between the railways and the public on account of the altered conditions, he called attention to the fact that it is absolutely necessary for all modes of transport to increase their earnings if they are to provide adequate means of transportation for the nation and that it is impossible for them to exist under their pre-war charges. "Wherever there were statutory undertakings, whether in the hands of companies or public authorities" he said, "the position was this: The state authorized the undertakers to embark upon the provision of certain facilities for the public benefit and gave them statutory rights to enable them to provide these facilities, but imposed a condition that certain charges were not to be exceeded in the interest of the community and that the monopoly or comparative monopoly should not be used to exploit unduly the public dependence upon transports. Now we must admit that these maximum charges will not be sufficient to enable undertakings to operate and exist as a healthy part of the social and industrial structure of the country." In other words, the transport facilities must be able to raise money and money cannot be raised unless it can earn its keep.

Sir Eric went on to ask that if the community agrees to alter one side of the bargain in favor of the operators, is it not also entitled to say: "Let us review also the other side of the bargain for there is no reason why it should only be altered in one direction. The burdens of taxation and cost of living are high. We cannot afford to be as generous as perhaps we would wish to be and we must see whether there are no means by which we can reduce the cost of transport by alteration of the system." And in this regard he pointed out as illustrations, the fact that at the present time greater economy can be obtained in transport if the locks on the through routes of canals are made of the same dimensions, and that economy can be obtained by the use of large freight cars on railways only if the authorities conform to the highest or most modern standard. And again that larger cars or faster trains cannot be operated because of certain companies refusing to conform to a standard brake or a standard loading gage. As the community agrees on its part to permit the transport facilities to increase their rates it should on the other hand have the powers to alter this state of affairs.

Sir Eric also pointed out that under the new conditions and with the public permitting the transport facilities to increase their rates, they are entitled to know more about what these transport facilities actually accomplish and should be provided with statistical information in sufficient detail to enable them to determine whether or not this money they are giving in the form of additional rates and fares is being used to the best advantage.

As regards labor, he said: "Has not the community the right to say: 'Experience of labor questions has shown us that it is no longer possible to go on with the pre-war system of railway companies fighting out their fights with labor to the disaster of the community?'" In all these matters said Sir Eric, and in others, the community has the right to say that it must be considered. Without sufficient available statistical information, suspicion—which is bred throughout

the world and throughout all classes of society and in all ages through ignorance—will never be dispelled.

In commenting upon what great quantities of capital had been wasted in the early days of the railways, due to the fact that there was no concerted action between them, he called attention to the "battle of gages" and referred to the present question of a lack of uniformity in air brakes as analogous to the gage situation in the old days. Furthermore, he said, the English railways are now on the eve of great extensions of the application of electricity to railway traction and there is need of determining between the standard use of alternating and direct current.

In conclusion Sir Eric called attention to the fact that the state must harmonize the operation of the different transport agencies as between themselves and in the interest of the community as a whole. There must be constant conferences and co-operation both between the various agencies and between these agencies as a whole and the Ministry of Transport as a representative of the community which it serves. "We must all realize," he said, "that as the community pays and gives to the various transport agencies the statutory protection and rights which they enjoy, it is entitled to have a say as to the services performed, as to the charges levied, as to the smooth running of the industry and that with this object it is entitled to accurate, comparative statistics and figures which will enable it to judge with intelligent certainty the work of those by whose skill and devotion it profits, and for whose mistakes it pays."

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Reports for March 15 received by the Commission on Car Service indicate that some progress is being made in the direction of getting freight cars returned to their "home" lines, which is the purpose of the new car service rules that went into effect on March 1, although the rules are being applied with discretion to avoid unnecessary empty movement and to give service the first consideration. On March 1 the percentage of cars on the rails of the owning roads was at the lowest point that had been reached in two years, 22.2 per cent or about half of the normal percentage. While the gain is slight it would seem to indicate that there may be a continued improvement, which is particularly gratifying in the face of a heavy traffic requirement. The gain is most noticeable in coal cars. Box cars and flat cars show little change but there has been a slight gain as to box cars.

The Commission on Car Service has been devoting special efforts to getting a relocation of the coal cars which found their way into the western territory at the time of the coal strike, and which have been very slow in returning to the coal loading roads. For the first 15-day period of March the reports indicate that the western roads turned several thousand cars in the direction of coal loading territory. While the reports up to that date indicated that no gain had been made in New England and some of the other

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Open Cars—During the last half of March the car supply at bituminous coal mines is reflected by the very satisfactory upward trend which production has taken. Considerable improvement has been noted in the car supply at steel mills in the Pittsburgh-Youngstown District. All railroads are putting forth extraordinary efforts in order that the amount of piled steel may be reduced to normal. Car requirements of stone, sand and gravel are increasing as these commodities are now moving in greater volume for road construction purposes.

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amount of this business offering this season makes it of the utmost importance that there be no unavoidable delay in the handling of this equipment, and that detention at unloading points be reduced to a minimum. "Information is being received that this equipment in some cases is unduly detained under load at destination," the circular says. "Where such instances do occur, it will be appreciated if you will advise this commission promptly the names of delinquents at fault, showing car number, initial, point of shipment, date of way-bill, date of arrival, name of shipper and consignee, and the make and type (truck or passenger car) of automobile under load therein. On receipt of this information, we can assist in controlling the situation through the co-operation of the loading concerns."

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NOTWITHSTANDING the many difficulties arising out of, and damage done during the last revolutionary period in Mexico, the National Railways of Mexico are practically reconstructed and in operation, except for approximately 20 miles in the states of Morelos and Guerrero which will be ready for traffic within three months. Trains are running without interruption and in the state of Chihuahua are escorted by soldiers to protect passengers.

The traffic on the system has increased considerably; the gross monthly income of the railways, which in 1919 was \$4,000,000 (Mex.), now totals approximately \$8,000,000 (Mex.). The figure given is for the month of February, 1920. The gross income during the last year was \$70,000,-000 (Mex.), and expenses amounted to \$45,000,000 (Mex.). That is to say, the operating ratio is about 65 per cent; the commercial tariffs, both freight and passenger, have not been changed, except in a few special cases, during the last 18 years.

In view of this condition, briefly outlined, the Mexican Railway Administration desires to acquire a quantity of new locomotives and rolling stock in order to comply with the public requirements, which are increasing every day. During the last month the box car shortage on the Mexican lines totaled over 2,000 cars. About 1,000 box cars of between 40 and 60 tons capacity, and 30 to 40 locomotives, between 90 and 120 tons capacity, are needed immediately. Nearly all locomotives are burning oil, and the remainder are being quickly changed to use this fuel.

There are about 5,000 temporary bridges, culverts, etc., on the system still to be built or reconstructed permanently. The government administration is taking steps to replace these with concrete structures.

The preservation of ties is another matter which has been taken into consideration. For this purpose two large treating plants are being installed. One is located in Aguas Calientes, and the other in Perote, Vera Cruz. It is possible that even with these plants it may become necessary to order a large amount of creosoted timber from the United States.

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extension is being built from San Marcos, Jalisco, on the National Railways of Mexico to Tepic on the Southern Pacific, which runs along the Pacific coast of Mexico. When this connection is completed, transportation facilities will be provided between Mexico City, the center of the country and the states of Jalisco, Sinaloa, and Sonora. This line comprises about 72 miles of road, and when complete will cost approximately \$8,000,000 (Mex.) (3) Other lines of less importance are also in the process of construction, as for instance the line from Saltillo, Coahuila, to the east, and a line from Cuatro Cienegas, Coahuila, to Sierra Mozada, which will join the old International Railway to the North Mexican Railway. In other words the latter line will connect Escalon, Chihuahua, with Monclova, Coahuila. In addition to the above, surveys are being made between the F. C. & T. Railways and the United Railways of Yucatan, starting from Port of Mexico, Vera Cruz, or Santa Lucrecia to Campeche, Campeche. Another line which is being investigated will run from Zacatecas, Zacatecas, to San Luis Potosi and Tampico. At present about \$450,000 in gold is being spent per month in connection with construction work.

The track facilities and passenger stations at Tampico, Torreon and Guadalajara are now under construction. These buildings consist of first-class brickwork and dressed stone walls, with reinforced roofing. They are two-stories high and will contain railroad offices and accommodations for the traveling public.

The new passenger stations at Durango and Saltillo will be finished shortly, as will the shops and roundhouse at Saltillo. These shops are designed for heavy repair work and will take care of approximately 24 engines of about 120 tons.

The car shop will have a capacity of about 200 cars, and the necessary machinery, tools, etc., for these shops are estimated to cost \$2,000,000 (Mex.).

Journal Cooling Compound

IF IT WAS POSSIBLE to obtain accurate figures of the direct and indirect costs of cutting out freight cars in this country on account of hot boxes, the total figure would doubtless be surprisingly large. Some railroads make a direct charge of three dollars each time a car is cut out because of a hot bearing. Indirectly there is the loss due to delaying other freight cars, and in case the car cut out is loaded with perishable freight, the railroad may be liable for damages.

The estimated cost of removing and reapplying a pair of freight car wheels is six dollars. This amount plus \$1.20, the cost of machining, makes a total labor cost of \$7.20 on account of each hot box. The total labor cost, plus the charge of three dollars for cutting out, gives a grand total of \$10.20, representing the direct cost of a hot bearing. The indirect cost will depend on circumstances and may be little or great.

While it is not maintained that a journal cooling compound can prevent all of the hot boxes and their attendant costs, there is no doubt that with a suitable compound, used as soon as bearings show signs of becoming overheated, a large saving can be effected.

A cooling compound in the form of soft grease, which combines the qualities of a lubricant and a cooling compound, has been developed by the Mohawk Lubricating Company, Cincinnati, Ohio.

After a long and thorough test under actual service conditions this compound has proved its value and several of the roads testing it have arranged for a supply to be carried in each caboose. The method of application is simply to refill the box with clean waste, placing a liberal supply of

compound between the waste and the journal. When placed in contact with a hot journal, the compound effervesces, expands and spreads until it reaches the dry spot on the journal, lubricates it and removes the cause of the heat. Under heavy loads and high speeds hot boxes are more or less inevitable and when this cooling compound is applied in time, the hot box is prevented and there is no delay of the train.

It is stated that the cooling compound is not affected by climatic conditions such as heat or cold and, in a test at 40 deg. F. below zero, it did not freeze. Those familiar with the difficulty of starting heavy freight trains in the winter time, due to congealed oil and waste in the journal boxes, will appreciate this property. The compound is stated to be free of acids or any other ingredients that would injure metal or the hands.

Industrial Trucks in C. P. R.

General Store House

REAT IMPETUS has been given to the development and extension of the use of electric industrial trucks during the last few years by the rapidly growing cost and shortage of labor. The railroads have shared extensively in this development, particularly in the handling of freight and baggage and in the movement of material about car and locomotive repair shops. The possibilities for the effective use of industrial trucks for the movement of material within the storehouse have been demonstrated clearly in the general storehouse of the Canadian Pacific at Montreal, Quebec. As is generally the case, the trucks are used here primarily be-



Self-Loading Truck with Portable Platform in Use at the General Storehouse of the Canadian Pacific

cause of the reduction which they effect in the amount of labor required for the direct movement of material. However, other secondary advantages of importance have attended their use, including a saving in car time, at the general storehouse and a much later distribution of material in making up the daily l.c.l. shipments to local storehouses, which permits a complete classification of these shipments in station order with a consequent increase in the facility of unloading at destination.

About four years ago two Elwell-Parker electric trucks of the self-loading type were placed in service in the Montreal general storehouse and the details of the present system of consolidating and loading daily l.c.l. shipments have been

developed to take full advantage of the possibility for economy which trucks of this type possess.

The illustrations convey a clear conception of the methods employed. The bins shown are arranged along the outside wall of the storehouse near the point where the smaller miscellaneous articles are brought together and packed for shipment. Each bin is labeled with the name of the station to which it is exclusively devoted. At the beginning of each day, a ruggedly constructed wood platform suitable for self-loading on the truck is placed by one of the trucks in each of these bins. The truck, accompanied by a stores man, is then used to call at the different sections to secure the material to fill the requisitions and deliver it to the bins, where it is loaded on the platforms instead of being placed on the floor, as was the former practice. One handling of all material shipped has thus been eliminated. Should a shipment require more than the capacity of one platform, another is placed in the bin after the first is loaded.

Later in the day when the cars have been spotted ready for loading, the trucks are used to pick up the platforms, move

The general storehouse at Montreal is located at the Angus shops and a comparatively large amount of stores materials are manufactured in the shops. The self-loading trucks and platforms are used in handling such materials. Empty platforms are placed by the trucks at suitable locations in the shops where completed materials for stores stock are loaded directly onto them. The trucks convey the material on these platforms from the shops to the storehouse, replacing loaded platforms with empty ones.

It frequently happens that some heavy pieces of material require moving from stock by the traveling crane. To provide for this, an extension of the store loading platform has been made so that empty truck platforms may be placed under the crane. This permits the loading of such material directly onto the platforms, which the trucks then pick up and move directly into the car for shipment. This arrangement has eliminated a large amount of labor in the handling of heavy pieces, which under the old method frequently required the help of a whole gang.

The saving in time and labor which has followed the adop-



The Method of Classifying L. C. L. Shipments for Handling with Self-Loading Trucks at the General Storehouse of the Canadian Pacific

them into the cars and leave them. While one platform is being unloaded by the car gang, a truck returns for another, thus eliminating the loss of time by the car gangs while waiting for loads. The loading is thus handled so expeditiously that distribution of material may be continued much later than was possible when using hand trucks, and the loading may be completed with all material in perfect station order. This eliminates the necessity of moving articles loaded out of station order each time the car is opened and greatly facilitates unloading. The later loading made possible by the use of the trucks also effects a material saving in car time.

The self-loading trucks have proved almost equally effective as labor savers in handling incoming material as they have in shipping. When purchased materials are delivered to the stores department by teamsters, they are unloaded from the wagons directly onto truck platforms assigned for that purpose. The loaded platforms are then moved to the proper sections of the storehouse for unloading directly into stock and one handling operation is saved.

tion of the platform method of loading l.c.l. shipments has led to the development of this scheme one step further in connection with the full carload shipments of miscellaneous stores to a single point. Instead of unloading the material from the platforms when they are placed in the car, as is the practice with l.c.l. shipments, the platforms are left in the car and shipped with the loads on them. When the shipment reaches its destination it is then only necessary to run a truck into the car and carry the loaded platforms out, instead of handling each piece of material separately. This scheme, of course, involves the installation of a truck at the receiving point, but the reduction in the expense of handling at points where carload shipments are received is believed to be ample justification for the capital expenditure involved in the purchase of the necessary truck.

Since the adoption of this system of handling material, the labor cost of loading and unloading cars has decreased to 46 per cent of the cost with the old system of hand trucking. It is entirely to the use of the self-loading trucks that this very considerable saving is attributed.

General News Department

The Western Railway Club will hold its next meeting on April 19, at the Hotel Sherman, Chicago. S. W. Mullinix, superintendent of shops of the Chicago, Rock Island & Pacific, will present a paper on "Modern Methods of Reducing Cost of Locomotive Repairs."

The Canadian Railway Commission has ordered Canadian railway companies to cancel the announced 10 per cent passenger fare increase to points in the United States, which was to go into effect on March 29, to make up for the adverse rate of exchange in the United States. The increase was to have applied to all through tickets, except sleeping and parlor cars.

Co-ordination of terminal operation in the Cincinnati (Ohio) district will be continued permanently, with John A. Morris, terminal manager of the Cincinnati Terminals during federal control, in charge, acting as chairman of the Cincinnati terminal operating committee, representing all of the initial lines. This decision was reached at a meeting of railroad officers representing all of the roads entering the Cincinnati terminals.

The National Safety Council now has a constituency of 7,500 industrial plants, and the library of the council has become a large institution. The librarian has spent 140 hours in preparing an index to the report of the proceedings of the last congress of the council. This report will soon be issued. Following the example of other cities, which have reported encouraging results it is announced that Akron, Ohio, Wilmington, Del., and several other cities are planning to have a "safety week campaign" in the month of May.

The Delaware & Hudson Company recognizes the advantages that have been gained by the Safety Organization which was established in September, 1918, and Vice-President F. P. Gutelius, in a circular stating this fact, and citing the gratifying record which has been made, calls on all officers and employees to continue the same determined and concerted effort to eliminate accidents. J. E. Long, superintendent of safety, with the safety agents, will continue their work. The division, shop and general safety committees will be maintained.

The Federal Reserve Board has appointed an advisory committee to render advice and assistance to the Treasury Department and the Interstate Commerce Commission with respect to applications of railroad companies for loans from the \$300,000,000 fund appropriated for that purpose by the transportation act, and particularly regarding the security to be furnished by the railroads. The committee consists of F. A. Delano, a former member of the Federal Reserve Board and former railroad president; Paul M. Warburg, also a former member of the board, and Bradley Palmer, a Boston attorney.

Representatives of the Railroad Brotherhoods and of the National Farmers' Council have been conferring with Samuel Gompers and other officers of the American Federation of Labor in an effort to bring about a greater degree of harmony in the political campaigns of the two groups, which have been proceeding along divergent lines. The somewhat strained relations between some of the brotherhood leaders and Mr. Gompers, said to have resulted in part from his refusal to endorse the Plumb plan, have not been improved by a letter which Mr. Gompers wrote to the Chicago Federation of Labor endorsing some Congressmen who had voted for the Esch-Cummins railroad bill, but it is understood that he has since qualified his endorsement.

The American Railway Express Company has announced that on and after April 15, it will require prepayment of express charges on all shipments going to Canada. This action, according to the announcement, is in line with that taken by the rail-

roads, and has been made necessary because of the rate of exchange, which makes the Canadian dollar worth only 86 cents in United States money. The tariff rates from express offices in the United States to those in Canada have always been calculated in the currency of the United States. The express company has found that it thus loses 14 cents on every dollar of express charges when collection is made in Canadian funds. The date of the enforcement of this new rule has been placed in advance so as to give shippers in the United States an opportunity to make necessary arrangements with customers in Canada.

The strike of clerks and shopmen on the Norfolk and Western, said to have been kept up until 12,000 men were out, was reported settled on Saturday, April 3. At Roanoke, Va., train movements and shop operations were then reported as restored to normal. "Important concessions" were said to have been made by both employer and employees. The only tangible reason for the clerks' strike that was made public was a demand for the dismissal of two non-union clerks, whose offense is not clearly explained. The railroad is understood to have agreed to transfer the clerks to another department, and the leaders of the strikers agreed that in the future it should be understood that organized employees on the road will not walk out without submitting to a thorough investigation of their grievances.

New Station at New Haven, Conn.

The New York, New Haven & Hartford on Tuesday formally opened to the public its new station at New Haven. The station was built by the Thompson Starrett Company. It has a small amount of office space which will be used by the division offices, etc.

The plans for the development at New Haven also include further improvements in the way of baggage and express buildings, etc., which will be carried out in the future.

Correction

The statement of revenues and expenses of railways for the month of January, 1920, as shown on page 977 of the March 19 issue of the *Railway Age*, contained several incorrect figures for the Denver & Rio Grande.

The following table will show the figures as they appear in the various columns, and as they should appear:

Operating expenses:	As given in <i>Railway Age</i>	Correct figures
Traffic	\$248,997	\$20,615
Transportation	719,558	1,137,961
General	20,615	71,812
Total	1,137,961	2,238,425
Operating ratio	33.27	65.44
Net from railway operations	\$71,812	\$1,182,416
Railway tax accruals	2,238,426	115,000

An error also appeared in the figures for the St. Louis-San Francisco, which were given on page 1065 of the *Railway Age* of March 26, in that the operating income of \$751,763 was shown with a minus indicating a loss. The minus sign should not have appeared.

Increase in Cost of Coal

Before relinquishing his authority over fuel distribution as of April 1, Director General Hines announced a decision that it would be legal for the Railroad Administration to allow for the 14 per cent increase in miners' wages authorized by Fuel Administrator Garfield at the time the coal strike was settled, in paying for railroad fuel on contracts carrying wage adjustment clauses, even though such an adjustment produced a price in excess of the applicable government maximum price.

H. B. Spencer, director of the Division of Purchases, advised the regional purchasing committees of this fact on March 27, requesting that they make a prompt adjustment of such accounts.

The standard form of contract covering coal purchases contained a clause stating that the prices named were based on existing rates of pay and would be subject to readjustment in the event wages should be changed.

New York Railroad Club

B. B. Miller, engineer of motive power and rolling stock of the New York Central Railroad, will present a paper on "How to Increase Efficiency and Operating Capacity of Steam Locomotives" at the meeting of the New York Railroad Club on Friday evening, April 16. Among other things, Mr. Milner will discuss feed-water heating, trailer boosters, dynamic augment, and cutoff adjustment to secure maximum horsepower.

Frauds in Disposing of Unclaimed Freight

In the United States District Court at New York City on March 31, four men, two of them employees of the Central Railroad of New Jersey, were sentenced for conspiracy to defraud the United States Government (the United States Railroad Administration) in connection with the sale of unclaimed freight. G. S. Dumont, who pleaded guilty, was sentenced to 30 days' imprisonment, Solomon Shuldniner to five days and Charles E. Johnson and Robert Laurie to one day each. The men had formed a brokerage and trading company and this concern was fined \$500. Also, part of the proceeds of goods wrongfully taken had been restored, and hence the lightness of the penalties. Freight valued at more than \$140,000 had been diverted, and in the trial it was said that similar frauds amounting to millions had been perpetrated. The Central of New Jersey and the Central Vermont are the roads most prominently mentioned in the record.

The Chicago Strike

On page 1145 of this issue will be found an article on the strike in Chicago, entitled "Strikes and Storms Conspire to Cripple Traffic." The following will give later details:

On Wednesday the situation remained practically unchanged. Appeals sent out by the Brotherhood of Railroad Trainmen for recruits to fill the places of members of the outlaw organization had not brought the results expected, and all freight movements in the Chicago district were badly hampered. The movement of perishables and other foods has been greatly curtailed and the city's food supply is endangered. Embargoes have been laid in all directions.

Locomotive enginemen and firemen, on freight trains, both road and switching, said to number 8,500 in the Chicago district, members of a national enginemen's association similar to the outlaw switchmen's organization, are reported as having taken a sympathetic-strike vote to walk out on the 8th (Thursday). The mania for forming outlaw unions seems to be spreading, and reports indicate that such action may be expected at Kansas City, Mo., and Bloomington, East St. Louis, Champaign and Centralia, Illinois.

Bureau of Explosives

The Bureau for the Safe Transportation of Explosives and Other Dangerous Articles has issued the annual report of the chief inspector, Colonel B. W. Dunn, dated March 1, 1920. The report, with appendices, fills 117 large pages. The constituency of the bureau now numbers 439 railroads, together with ten steamship lines and four express companies, and 76 associate members.

During the year 1919 the number of boxes of high explosives condemned as unsafe for transportation was 1,291, a far smaller number than in either of the last three preceding years. The total number of inspections made was nearly 10,000. The list of inspectors includes 33 names, and a dozen of these men have been in the service of the bureau more than ten years.

Gasoline is now the most destructive of the articles classed as dangerous to transport, the quantity transported annually in the United States amounting to about 3½ billion gallons.

Colonel James L. Taylor, assistant to the chief inspector, has delivered 102 illustrated lectures during the year, with a total attendance of 11,710, and the inspectors have delivered 188 lectures. The inspectors of the bureau are constantly called upon

for advice, examination of proposed facilities and other matters, so that they have less time than formerly to make routine inspections.

Decennial Celebration for the Forest Products Laboratory

Preliminary arrangements have been completed for the celebration of the tenth anniversary of the opening of the Forest Products Laboratory at Madison, Wis., during the latter part of June. It is expected that a large gathering of representatives from the various industries interested in the laboratory's work will be present. Present plans call for a two-day meeting, with addresses by men of national reputation in science and industry.

The Forest Products Laboratory is a branch of the United States Forest Service, established in 1910 in co-operation with the University of Wisconsin, and is a consolidation of a number of testing laboratories and other units of the Forest Service which had been located at various points throughout the United States. It is engaged principally in industrial research on problems connected with the manufacture and use of forest products. At the present time the laboratory employs about 200 people and occupies five buildings in whole or in part.

Savings Through Accident Prevention

The railroads of the United States saved at least \$4,000,000 as a result of their accident prevention work during the calendar year of 1919, according to recent statistics compiled by the National Safety Council. This estimate is based on the records of the Safety Section of the United States Railroad Administration, which show that during the first eleven months of 1919 there were 27,933 fewer injuries and 2,103 fewer deaths than occurred during the first eleven months of the preceding year, a total reduction in the railroad accident casualty list of 30,036. The financial saving as a result of this conservation of men has been computed and estimated by the Council at \$4,000,000. In addition the following figures have been compiled by the Interstate Commerce Commission for the National Safety Council and show the comparison between the annual operating expenses incurred on account of injuries to persons on roads reporting to the Commission from 1911 to 1918:

Year ending June 30, 1911.....	\$25,408,316
Year ending June 30, 1912.....	27,068,802
Year ending June 30, 1913.....	29,783,431
Year ending June 30, 1914.....	31,954,890
Year ending June 30, 1915.....	26,425,884
Year ending June 30, 1916.....	26,880,717
Year ending December 31, 1916.....	29,485,700
Year ending December 31, 1917.....	33,699,135
Year ending December 31, 1918.....	33,369,199

Compensation of Arkansas and Louisiana Midland

A board of referees appointed by the Interstate Commerce Commission has rendered a decision that the Arkansas & Louisiana Midland was under federal control from December 28, 1917, to June 30, 1918, when it was relinquished by the government, and that it is entitled to compensation at the rate of \$38,789 a year for that period, being the amount of its average net operating income for the three years ended June 30, 1917, as certified by the Interstate Commerce Commission.

The Railroad Administration took the position that the railroad had not been taken under federal control, this on the ground that no jurisdiction was exercised over it and that its just compensation at any rate would not exceed its standard return and probably ought not to be more than \$15,000. The company claimed that if all except necessary and tenable repairs be borne by the company during the period of federal control the just compensation would not be less than 10 per cent per annum on its investment, or \$86,672; that if the government should assume the upkeep and maintenance, and undertake to return the property in substantially as good condition as it was in at the beginning of federal control, the just compensation would be 6

per cent, or \$42,003, but that if the board should reject these claims and should prefer to calculate the compensation upon evidence of estimated prospective income, the just compensation would be \$200,376 annually. The board of referees does not undertake to apportion the maintenance expenses, but says that the applicant in a proper proceeding in the proper tribunal may seek to establish the items of its claim for under-maintenance.

Railroad Matters at Ottawa

The Minister of Railways of Canada, reporting to the House of Commons at Ottawa last week, presented statements showing that the Canadian National Railways in the fiscal year ending March 31 had fallen short of paying expense by about \$14,000,000. That part of the government system represented by the Canadian Northern lines lost \$6,500,000, and the lines owned by the government \$7,500,000. In addition the fixed charges for the year will amount to \$19,000,000. About 78 per cent of the receipts were required to pay the wages of employees, and the aggregate operating expenses increased from \$84,000,000 in 1918 to \$108,000,000 in 1919. The minister said that no work would be done at present on the Hudson Bay Railroad. The length of track already laid is 332 miles and the distance yet to be covered is 92 miles. Over twenty millions already has been expended on this line, and to complete the road, with suitable terminals, would cost between five and six millions.

It is understood that the government is not likely to take any action this year looking to the acquirement of the Edmonton, Dunvegan & British Columbia Railway, or the Alberta & Great Waterways Railway. The first-named road extends into the Peace River region and it is conjectured that the Alberta government may appoint a receiver for the two roads, and that they may be sold to the Canadian Pacific. That company has disclaimed a desire to get them, but is believed to be anxious to get an entry into the Peace River country, which this year is expected to have the greatest influx of settlers in its history. The fur industry has been given a great impetus by present high prices, and there are hopes of developing vast oil fields.

Railroad Administration Appoints Regional Counsel

E. Marvin Underwood, general counsel for the Railroad Administration, has announced the appointment of regional counsel for the administration in various parts of the country to represent the general counsel in the respective territories and, in addition to such other duties as may be assigned to them, to supervise generally under direction of the general counsel, the adjustment or other disposition by carriers of personal injury, freight, fire and stock damage claims growing out of the operation of the railroads by the government in order to permit close and direct cooperation between the Division of Law of the administration and the legal departments of the carriers.

"They will render all possible assistance to the latter," the announcement says, "in connection with the adjustment, settlement, or other disposition of pending claims and litigation; and it is hoped by the director general that their appointment will facilitate, for the advantage of all parties, the speedy closing of matters of this character arising out of federal control."

Douglas Brookman, of San Francisco, has been appointed regional counsel for the western region, and C. L. Birch, of San Francisco, has been appointed regional claim agent to assist Mr. Brookman. Charles P. Williams, of St. Louis, Mo., has been appointed regional counsel for the southwestern region, and Sidney F. Andrews and J. P. Shea, also St. Louis, have been appointed assistant regional counsel and region claim agent, respectively. Joseph W. Cox, of Washington, D. C., has been appointed regional counsel for the Central region. Elias Field, of Boston, Mass., has been appointed regional counsel for the New England region, and J. P. Manning, Jr., and J. P. Henson, also Boston, have been appointed assistant regional counsel and regional claim agent, respectively. Victor Lamar Smith, of Atlanta, Ga., has been appointed regional counsel for the southeastern region. Alexander W. Smith, of Atlanta, Ga., has been appointed special counsel with headquarters in Washington, D. C., and will assist general counsel in financial and compensation contract matters especially assigned. The regions do not correspond to those formerly maintained by the Railroad Administration, but are defined by lists of roads in the appointment circulars.

Traffic News

Various government departments in Washington, acting under directions from the Bureau of Mines, are taking steps to order and place in storage this spring a three months' supply of coal. This is in accordance with recommendations of the Bituminous Coal Commission for a campaign to stimulate coal production during the early part of the year.

The volume of fruit moving northward from Florida is now very large. At Lynchburg, Va., 250 carloads of oranges and grape fruit are reported as passing through over the Southern Railway daily. Merchants in New York City complain, however, that cabbages grown in southern states which are in great demand in the north cannot be had because of a shortage of freight cars, and it is declared that cabbages worth \$60 a ton are going to waste in the fields.

A bill to authorize the Interstate Commerce Commission to fix the percentage of express earnings which shall be paid to the railroads for the transportation of express matter, is said to be under preparation by Representative Esch and Senator Underwood, the purpose being to enable the commission to increase express rates without the necessity for increasing them twice as much as the express company needs. Under present contracts the railroads usually receive about 50 per cent of the express revenues.

The Southwestern Tariff Committee has resumed its functions under the name of the Southwestern Freight Bureau, with F. A. Leland as chairman and the former Standing Rate Committee, consisting of C. P. Dowlin, J. E. Johanson and Frank Koch as members. Its headquarters are in the Century building, St. Louis, Mo. The plan of operation is similar to that which was in effect prior to federal control. Changes in rates, rules, and regulations are determined by a general traffic committee, consisting of the principal freight traffic officers of the member lines.

The eighteenth annual dinner of the Traffic Club of Pittsburgh (Pa.) will be held on April 8, at the William Penn Hotel, Pittsburgh. President Charles B. Ellis will preside and J. F. Townsend, traffic manager of the National Tube Company, Pittsburgh, a former president of the club, will be toastmaster. Dr. Charles Aubrey Eaton, associate editor of *Leslie's Weekly*, will deliver the principal address. A. Dewitt Foster, superintendent of resources, Canadian National Railways, Chicago, will also address the club on "America's Place in the New Map of the World."

The freight embargo on traffic destined to the oil fields of Texas, in effect on the Texas & Pacific, has been lifted, allowing free traffic movement within these districts without the use of permits. The order raising the ban adds, however, that, to avoid congestion, traffic department representatives will impress upon shippers the necessity of distributing traffic so as to avoid accumulation at any one junction. Congestion in the Texas oil fields has resulted in an almost continuous embargo on all lines in this district for the past two years. Relief came when the Wichita Falls, Ranger & Ft. Worth began operation on March 15, between Ranger, Tex., and Jakehamon.

The Transportation Club of San Francisco recently elected the following directors: H. C. Ewing, Pacific coast manager, D. C. Andrews, Inc.; M. F. Copley, assistant general freight agent, Pacific Steamship Company; W. B. Hinchman, assistant traffic manager, Tonopah & Tidewater; F. C. Lathrop, assistant general passenger agent, Southern Pacific, and D. M. Swobe, vice-president, McCloud River Railroad. The following were elected officers of the club: A. A. Moran, Dollar Steamship Company, president; D. M. Swobe, first vice-president; W. B. Hinchman, second vice-president; Henry Avila, district passenger agent, Union Pacific, treasurer; and R. G. Guyett, secretary.

The Chicago Traffic Club, at its annual election held on March 30, unanimously elected the following officers and directors:

President, E. L. Dalton, general traffic manager, Montgomery, Ward & Co.; first vice-president, R. B. Robertson, assistant freight traffic manager, Union Pacific; second vice-president, G. K. Sage, traffic manager, Fairbanks, Morse & Co.; third vice-president, L. W. Landmann, passenger traffic manager, New York Central; secretary, E. S. Buckmaster, assistant general agent, American Railway Express Company, and treasurer, J. F. Coykendall, treasurer, Chicago Great Western. The directors elected for two years include: Carl Howe, traffic manager, Michigan Central; H. C. Barlow, traffic director, Chicago Association of Commerce; Henry A. Palmer, editor, the Traffic World, and S. F. Miller, general freight agent, Chicago & North Western.

A strike of men on freight boats in New York harbor has hampered freight movement seriously since April 1 and for a day or two the movement of the railroad companies' passenger ferries between New York and Jersey City was somewhat disturbed, but on Wednesday the 7th the railroads had filled the strikers places so successfully that they rejected all proposals to arbitrate. Perishable freight was being moved satisfactorily and the situation as to other freight was rapidly improving. The strikers claimed that the Erie was evading the eight-hour rule by selling its lighters to an outside concern, with a view to having its lighterage done by contract and that the other railroads were to follow; but the Erie replied that a large part of its lighterage had all along been done by contract. A statement issued by the general managers' association said that the strike was started because of the refusal of the railroad companies to accede to the demand of the Marine Workers' Association that the railroad companies stop the delivery of freight to the United Fruit Company's piers, where a strike of the United Fruit Company's longshoremen was in effect. The sale by the Erie Railroad of a few of its tugs to the Phoenix Transit Company was declared to be a false reason. The United Fruit Company is contending against a closed shop.

Chicago Consolidated Ticket Office

The rearrangement of the Chicago consolidated ticket office necessitated by the withdrawal of the Chicago & North Western and the Minneapolis, St. Paul & Sault Ste. Marie has been agreed upon by the passenger traffic representatives of the 19 lines which will continue the arrangement inaugurated under federal control. The regrouping of ticket offices is to be effective April 5, and non-competing lines will be grouped as separate units wherever possible.

The eastern and southern lines which will continue the arrangement are: The Baltimore & Ohio, the Chicago & Eastern Illinois, and the Nickel Plate; the Illinois Central and the Grand Trunk; the Michigan Central, the Big Four, and the Chesapeake & Ohio; the Monon, the Pere Marquette, the Erie and the Wabash; the New York Central; and the Pennsylvania System.

The western lines which will remain in the consolidated office are the Chicago & Alton and the Chicago Great Western; the Atchison, Topeka & Santa Fe; the Chicago, Rock Island & Pacific; the Chicago, Milwaukee & St. Paul; and the Chicago, Burlington & Quincy. Each of the latter four roads will operate separate unit ticket offices.

The Western Passenger Association

The Western Passenger Association has been reorganized by officers of the passenger departments of western railroads at recent meetings held at Chicago. Eben E. MacLeod and T. Thompson, respectively chairman and secretary of the association prior to government control, were re-elected to these positions and will have offices in the Transportation Building, Chicago.

There will be three organizations hereafter to handle passenger matters in western territories. The Western Passenger Association will serve for the territory from Chicago to Colorado and to a boundary with the Southwestern Passenger Association. The latter association has been created to handle matters in the southwest and the Transcontinental Passenger Association will handle matters for the roads on the Pacific coast and matters affecting through business

from Chicago to the Pacific coast. These associations will take the place of the Western Passenger Committee which existed during federal control.

Western Trunk Line Rates

Executives of the lines in Western trunk line territory have adopted a policy of dockets and hearings in the matter of rates. The Western Trunk Line Standing Rate Committee, composed of E. B. Boyd (chairman), Frank Bannister, James Coffey and G. H. Merrick, will sit in Chicago. The members are on salary and have no other railroad employment. District committees will be formed in Chicago, St. Louis, Mo., St. Paul, Minn., Kansas City, Mo., Denver, Colo., Omaha, Neb., and Salt Lake City, Utah. Subjects for consideration will be docketed by the Standing Rate Committee and assigned by it to the district committees. A shipper who wishes to be heard may have his hearing either before the standing committee or the district committee to which the matter has been assigned.

The N. I. T. League on the Transportation Act

The following is part of the report of the executive committee of the National Industrial Traffic League, presented at the spring meeting of that organization held at St. Louis, Mo., on March 18 and 19:

"The Railroad bill as passed by the House of Representatives was substantially in conformity with the views of the League, except as to its labor provisions, while the bill as passed by the Senate was radically different, and, on the whole, was quite unsatisfactory to the League. The House bill as amended by the Senate was referred to a joint conference committee which labored earnestly, conscientiously and without regard to politics to agree upon some legislation which would best meet the needs of the country, and which, even if far from perfect, might provide for the orderly return of the carriers to their owners, give them reasonable protection in shape of a government guaranty while they were building up their organizations and adjusting themselves to the new conditions, and furnish to the Interstate Commerce Commission more complete authority and more definite directions to enable it to properly regulate the carriers in the public interest.

"Except for the labor and rate-making sections of the bill, the conferees were able to reach an agreement which, on the whole, was quite satisfactory to us. In the labor section the Senate conferees were insistent on some anti-strike clause and this was also desired by the League. However, canvass of the House showed the impossibility of passing such legislation, and a compromise provision was agreed upon. This was bitterly fought by organized labor, apparently for the reasons that it gave the public a voice in the settlement of wage controversies and that it permitted 100 or more unorganized employees to have their grievances heard. Though this labor section was not as strong as we desired, the passage of it in the House over the violent opposition of organized labor, was, in my opinion, a most gratifying sign. With respect to the rate-making section we were on record as strongly opposing the fixing of rates to yield a specified rate of return and the recapture from the more prosperous carriers of a percentage of the excess earnings over such rate of return. As the Senate conferees refused to yield on the principle of this section, it was finally agreed to by the conferees in a modified form.

"Like all compromise measures, the result of the conference committee's work was not wholly satisfactory to anyone, including the conferees, but it was unquestionably the only legislation which could be enacted at the time. The fact that the bill as finally adopted was not entirely satisfactory to any interest may perhaps indicate that it reasonably measures up to the standard of legislation for the benefit of the whole people without unduly favoring any interest.

"In conclusion it should be said that, regardless of differences of opinion, respecting the wisdom of certain features of this legislation, it is now the privilege and the duty of the League and each of its members to accept it cheerfully, and do our utmost to see that it is given a fair trial. To that end we have already advised the Commission and the associations representing the railroads of our earnest desire to co-operate with them and with other interests in working out the problems which may arise under the new conditions.

Commission and Court News

Interstate Commerce Commission

Railway carriers and water carriers have been asked by the Interstate Commerce Commission to arrange for conferences at the earliest practicable date with a view to immediately complying with the provisions of paragraph (4) of Section 25 of the transportation act, which imposed upon the railway carrier the duty of issuing a through bill of lading to the foreign point of destination and after an agreement as to this uniform bill of lading has been reached by such carriers, it is to be presented to the commission for its approval. Representatives of shippers should be freely consulted, the commission says, and the commission should be advised from time to time as to the progress which is being made.

The commission on April 3 suspended the proposed increase in local passenger fares on the Hudson & Manhattan, between points in New York and Jersey City and Hoboken, but the company was advised by letter that division No. 2 of the commission is of the opinion that some increase is warranted and that the suspension is without prejudice to the filing of a tariff providing for a 10-cent fare from New Jersey points to uptown New York, and a 6-cent fare to downtown New York, in place of the proposed uniform 8-cent fare. The company will accept and act on the suggestion of the commission, which contemplates a three months' or six months' trial of the advanced rates. The commission proposes these rates to "obviate the necessity of a detailed and prolonged investigation."

Personnel of Commissions

J. A. Lindstrand, senior architect in the Bureau of Valuation of the Interstate Commerce Commission, with headquarters at Chicago, has resigned to engage in private business as an architect, with office at 800 North Clark street, Chicago.

State Commissions

The Public Utilities Commission of Illinois issued an order on March 30, citing representatives of all railways of Illinois to appear before the Commission on April 14, when a hearing on the freight rates charged by carriers in Illinois will be held. The order stated that a number of informal complaints had been received by the Commission against the continuation of the present rates, which were instituted during the period of federal control. The complaints allege that the tariffs were "discriminatory, unjust and unreasonable."

Railroad and steamboat charges for the transportation of rice have been attacked in a complaint filed recently with the Railroad Commission of California by the Pacific Rice Growers' Association. The defendants in the action are the Atchison, Topeka & Santa Fe, the Southern Pacific, the Western Pacific and nine other railroads operating in California. The charges made by the Rice Growers' Association are that the present rates on rice and rice products are unreasonable and discriminatory to the rice growers of California. The association asks, not only a reduction in rice rates, but the same transit privileges, such as milling, cleaning, storing and bulking, that are accorded analogous commodities.

The South San Francisco (Cal.) Chamber of Commerce recently filed a complaint with the Railroad Commission of California asking the commission to compel the Southern Pacific to extend the "San Francisco switching limits" to include South San Francisco and to maintain a rate of \$2.50 per car for switching carload traffic of all kinds, irrespective of its origin and destination, between industry tracks or wharves at South San Francisco and its interchange tracks with the Atchison, Topeka & Santa Fe and the Western Pacific in San Francisco, when incident to a line haul. The Chamber of Commerce maintains that in the matter of charges for switching carload freight, the railroad companies discriminate in favor of other communities.

A similar action was pending before the commission before federal control and the action was dismissed because of lack of jurisdiction.

Court News

Injunction Against Eminent Domain Proceedings

The Pennsylvania Supreme Court holds that where a railroad files a bond in condemnation proceedings to take land for a branch, the owner is not entitled to a preliminary injunction to prevent it on the ground that the branch is not for a public use, but merely in the interest of a private coal company. Where a railroad franchise is established the commonwealth is the only party to restrain a fraudulent use of it.—Mountz v. Pittsburgh, Bessemer & Lake Erie (Pa.), 108 Atl. 170.

Jurisdiction of Actions for Liabilities

Incurred in Period of Federal Control

The federal district court for the Northern District of Ohio holds that an action to enforce a liability incurred in the operation of a railroad while under federal control may be maintained in such courts, and only such courts, as would have had jurisdiction in the absence of federal control, and the citizenship of the railroad company, and not of the Director-General, determines the jurisdiction of a federal court.—Smith v. Babcock, 260 Fed. 679.

Stipulation for Specified Items of Damage

Reasonable and Claims Restricted Thereto

A contract for the carriage of live stock contained the usual four months' limit for filing claims and stipulated for damages that "no damages can be recovered except those set forth in the written notice and in no greater amount than claimed in said notice." The Kansas Supreme Court holds, in an action for damages, that such a stipulation is reasonable; allowances made by a jury in excess of any of the itemized claims thus presented by the shipper must be reduced and limited thereto.—Caston v. Schaff (Kan.) 185 Pac. 33.

Stop, Look, Listen; Pennsylvania Rule

A driver of a horse and wagon, familiar with a crossing, stopped, looked and listened 20 feet from the nearest of the two tracks. Seeing the gates were up he drove on without stopping or looking again, though his view was obstructed, and he was struck on the second track. The Pennsylvania Supreme Court held that he was guilty of contributory negligence as a matter of law; that a person who has entered on railroad tracks with a view to crossing must continue to look and listen for approaching cars, and that the fact that the safety gates are not lowered at a crossing does not relieve a driver from the duty of exercising ordinary care.—Kipp v. Central of New Jersey (Pa.), 108 Atl. 175.

Reparation for Misquoted Rates

A shipper in interstate commerce paid a freight rate less than that established by authority of the Interstate Commerce Commission, the parties not being aware that the rates had been increased by the Commission. When the mistake was discovered the railroad demanded the difference between the old and new tariffs. The shipper paid, on the railroad's agreement or promise to submit the shipper's claim for reparation to the Interstate Commission. This was not done until more than two years after, when the Commission disallowed the claim because on account of the delay it had no power to consider it. The shipper sued the railroad and recovered judgment for the railroad's breach of its promise. On appeal, the North Carolina Supreme Court revised the judgment and directed a nonsuit, the promise being void under the federal statutes prohibiting rebating, and the damages being speculative, because of the impossibility of determining how the Commission would have decided the case. The principle is firmly settled that the only rate is the rate fixed by the Interstate Commerce Commission and published, and no contract, agreement, understanding, or misquotation by mistake between the parties can change it.—Edenton Cotton Mills v. Norfolk Southern (N. Car.) 100 S. E. 341.

Foreign Railway News

Egyptian Railways Short of Coal

LONDON.

The Egyptian railway services are being considerably reduced owing to a shortage of coal. Efforts are being made to obtain supplies of coal from India and South Africa.

New Railways for Ecuador

LONDON.

The Ecuadorian Senate has approved a bill, already passed by the deputies, authorizing a contract with a Chilean-Ecuadorian syndicate, for the construction of a railway from Port Bolivar through Cuenca and Loja, eastward to the Amazon.

In Ecuador it is expected that the work will be of benefit not only to Ecuador, but to Chile, as it means the establishing of an interoceanic route through the valleys of the Amazon from the Pacific to the Atlantic, from Port Bolivar and the gulf of Guayaquil to the port of Para in Brazil.

This line will serve an immense and wealthy Ecuadorian region, as yet only partially explored, whose soil is extraordinarily fertile, being watered by navigable rivers like the Zamora, the Santiago, the Morona, the Pastaza, the Napo and other affluents and tributaries of the Amazon.

Committee to Investigate Electrification

LONDON, March 22, 1920.

A committee has been formed in the Ministry of Transport to investigate the electrification of English railways. It is formed with Sir Alexander Kennedy, consulting electrical engineer, as chairman, with the following as other members:

Sir John A. F. Aspinall, consulting mechanical engineer to the ministry of transport.
 A. R. Cooper, electrical engineer of district railway.
 Sir Alexander Gibb, K. B. E., C. B., director general of civil engineering, ministry of transport.
 C. H. Merz, consulting engineer.
 Sir Philip Nash, K. C. M. G., C. B., ministry of transport.
 Sir John Snell, chairman of the committee under the electricity supply bill.
 Sir Henry Thornton, representing the Railway Companies' Association, secretary.
 Major Redmond.

The terms of reference to the committee are:
 That the committee should report on:

- (1) Whether any regulation should be made for the purpose of ensuring that the future electrification of railways in this country is carried out to the best advantage in regard to interchange of electric locomotives and rolling stock, uniformity of equipment, and other matters.
- (2) If any such regulations are desirable, what matters should be dealt with and what regulations should be made.
- (3) How far it is desirable, if at all, that railways or sections of railways already electrified should be altered so that they may form parts of a unified system.

Railway Construction in Central Africa

Since the termination of the war attention is again being given to the construction of various railway lines in Central Africa which were planned and surveyed prior to 1914. The following details concerning these lines is given in Commerce Reports by Vice-Consul Charles J. Pisar, Capetown, South Africa.

Complete communication between Cape Town and Bukama, on the Lualaba River, Belgian Congo, which is the upper part of the Congo River, has been established. Navigation is possible from here down the river, but it is difficult, owing to the obstructions caused by sand banks. For this reason the railway is to be immediately extended from Bukama to Kibombo, a distance of 53 miles, which is lower down and on the same river. A good supply of coal has been found about 15 miles south of Bukama, only a little over a mile from the railway. This should have an important effect upon the development of the whole of Katanga. The survey of the line mentioned above has been completed by the Coloniale de Construction and work on it will commence at once.

Work on the Benguella Railway is to be restarted, but it is not expected that much can be done before next summer, owing to the difficulty of obtaining material. The lower Congo-Katanga

Railway, which has been projected for some time, cannot be attempted for some years. It is this railway which would open up the heart of the Belgian Congo, especially the rich rubber districts; it would terminate at Stanley Pool and there join the railway from Boma.

Another railway that is seriously contemplated is from Bumba, on the Upper Congo River, to the north of the Equator, to the Moto gold fields and thence to the River Nile, probably ending at Redjaf, whence the Nile is navigable for 1,100 miles to Khartum. The survey has been completed of the Bumba Buta section, a distance of 500 kilometers (312 miles), following closely the River Lubi.

In Portuguese East Africa an important program of railway construction is contemplated, estimated to cost \$15,000,000. Survey parties have been formed, with many engineers from the Union of South Africa. One line is from Lourenco Marques through Gaza to Inhambane, a distance of 250 miles, in order that the rich coastal belt may be opened up. A large graving dock will be constructed at Lourenco Marques and the harbor will be improved. The other two lines to be started at once are from Quelimane and Lumbo, the port opposite to the island of Mozambique. Harbor works at Lumbo will be commenced.

Passenger Fares in England

LONDON.

In answer to a question in the English Parliament it was stated recently that the Minister of Transport did not intend to take any steps to effect a further general increase on ordinary passenger fares above their present level.

A. Neal, the parliamentary secretary to the Ministry of Transport, said, in reply to a deputation of London members of Parliament, whereas in the year 1913 the total number of ticket holders who were conveyed by the 17 principal railway companies in the country was 821,711,160, in the year 1919 the figure had increased to 957,999,990, or an increase of 16.1 per cent. These figures did not include those of the underground railways. He added that there were a smaller number of locomotives in actual operation and a larger number under repair which aggravated the problem. On the other hand, the introduction of the eight-hour day has caused a shortage of enginemen on the railways, and while the companies were doing all they could to overcome the shortage at the present time, it was not sufficient to enable them to run any further passenger trains.

Railway Developments in China

PEKING, February 15.

The Ministry of Communications has refused to sanction the petition for permission to build the new port to the east of Tientsin, mentioned in the last group of these notes. A persistent propaganda has connected American interests with the proposition. For this reason it is apparent to all Americans that there was no American connection with it, but that this was being used as cover for permission to open a port to which the proposed Japanese line to Jehol could be extended, as provided in the September agreements of 1918. The refusal of the Ministry of Communications is attributed to the activity of public interest in the general political situation.

The general attitude of the Chinese public to the Shantung situation has given rise to several projects for buying out the Japanese contract for an extension from Tsinan to Chentingfu. The latest form of the campaign is for a line to be built by China from Shih Kia Chuang to Tsangchow. Shih Kia Chuang is some 50 miles to the north of Chentingfu and is the junction of the Cheng Tai (Shansi) line with the Peking Hankow-Tsangchow is on the Tientsin Pukow line, about 35 miles south of Tientsin. This line would put the immense supply of coal and iron in Shansi in the closest possible connection with Tientsin. It would probably forestall any construction of a line to Tsinan, and thus prevent this traffic from being diverted from Tientsin to Tsingtau. But lately some other influence has intervened to put the Tientsin-Pukow junction point at Tehchow rather than at Tsangchow. The line to be built would be a few miles shorter, and Tehchow is a more important city than Tsangchow. But the haul to Tientsin would be made considerably longer and the haul to Tsingtau would be made more than correspondingly shorter.

The publication by the Ministry of Communications that the surplus for the year upon the Chinese Government railways in 1918 was \$34,700,000, has led to some interesting comment as to what becomes of the money. An analysis of the balance sheet for the combined lines and for the individual lines shows that over \$12,000,000 was invested in government bonds, \$4,000,000 was put into improvements and additions to the physical property, \$2,500,000 was used for redemption of funded debt, \$3,000,000 went into additional stores (or higher store prices), nearly \$6,000,000 consisted of revenue from government transportation, which is merely a "paper" figure, and \$7,000,000 consisted of convertible bank notes which have been deposited as security for special loans. So as a revenue producer to the government for general purposes, the railways seem to have contributed very little.

But the value to the government of \$6,000,000 of service and the purchase of \$12,000,000 of its bonds is not inconsiderable, especially when it is understood that these \$12,000,000 of bonds virtually means the redemption of that amount of convertible bank notes.

Preliminary figures for 1919 indicate that the gross revenues of the government railways will exceed those of 1918 by about \$3,000,000 and amount to about \$80,000,000. This is relatively a small increase until it is remembered that the year 1918 was acknowledged at the time to be abnormal in that a very considerable traffic normally belonging to 1917 was left over for 1918, due to floods in 1917. Operating expenses are known to have increased largely, so that net operating revenue for the year will probably be some \$2,000,000 short of the 1918 figure. The rate of exchange for interest payments has been so favorable, however, that this, together with the gradual reduction of funded debt, will probably result in a reduction of interest charges by at least \$1,000,000. Hence it is expected that the final surplus for the year will not be far short of \$33,000,000. This will be in fact a much better figure than that in 1918, although it is \$1,500,000 lower, for in 1919 the acceptance of convertible bank notes on the Peking Mukden and the Tientsin Pukow lines had practically been stopped, and on the Peking Hankow and the Peking Suiyuan it had been considerably restricted compared with 1918.

* * *

The high price of silver, instead of being a blessing to this silver-using country, is making it almost impossible to think of new construction. The French franc now sells at fourteen to the Chinese dollar compared with two in 1914. The English pound has sunk to \$3.00 Mex., compared with nearly twelve. The American dollar sells for 85 cents, compared with \$2.30. In the construction of railways in China, by means of a foreign loan, perhaps half of the loan is spent in the loaning country for interest, tools, rolling stock, and a certain amount of rail and bridge steel. The remaining half is spent in China for land, formation, ballast, stations and buildings, and labor generally. The average cost of construction has been about \$75,000 Mex. per kilometer. Put in terms of English pounds, there was about £3,500 spent in China and £3,500 spent in England, if that were the loaning country. Today, in order to realize the \$38,000 Mex. for expenditure in China (allowing for no discounts or exchange costs), over £12,000 are necessary. And to buy the foreign materials, because of the higher prices, instead of £3,500 some £7,000 are required. This makes the total cost of construction £19,000, instead of £7,000 before the war.

At present an interest rate of 8 per cent is being asked upon all Chinese loans, compared with 5 in the "good old days." This makes the interest payment per kilometer of line £1,520, instead of £350 as it used to be. Of course, at present rates of exchange, these £1,520 cost only about \$4,600 Mex., whereas the £350 at the old rates used to cost nearly \$4,000. If there were only this difference of \$600 to be considered, the "high cost of waiting" would certainly outweigh the high cost of building. But there is a great deal of uncertainty as to what the rate of exchange is going to do. Let us suppose after about five years it should resume something like its former position. Say the pound becomes worth \$7.00 Mex., instead of the old \$11.00 or \$12.00. Then interest charges become over \$10,000 per kilometer of line. Only two railways in China, the two oldest, can pay this rate of interest. If the lines could not pay the interest, who would? That is what the foreign contractor asks, and he has not received a satisfactory answer. Perhaps the rate of exchange will begin to improve soon. Who knows? At least the argument for waiting is strong.

Equipment and Supplies

Bids were received on Monday at the office of the chief of engineers, War Department, for the 113 Decapod locomotives built for the Russian government which were offered for sale, and also for a number of miscellaneous cars. While no announcement has yet been made, the indications are that the government will be able to dispose of the entire amount of equipment for cash. Eighty-seven of the locomotives had already been sold to American railroads.

Locomotives

THE MISSOURI PACIFIC is inquiring for 15 Mikado type locomotives.

THE CHICAGO, BURLINGTON & QUINCY is in the market for 15 Santa Fe type and 15 Mikado type locomotives.

THE JOSO RAILWAY (Japan) has ordered three 2-6-2 type locomotives from the Baldwin Locomotive Works.

THE BANSHU RAILWAY (Japan) has ordered one 2-6-2 type locomotive from the Baldwin Locomotive Company.

THE TAIWAN SEITO FORMOSA COMPANY has ordered two 0-6-0 type locomotives from the Baldwin Locomotive Works.

THE IMPERIAL JAPANESE GOVERNMENT RAILWAYS' requirements for the next 12 months include 80 Consolidation type and 120 Mogul type locomotives.

THE PACIFIC GREAT EASTERN, reported in the *Railway Age* of April 2 as being in the market for three Mikado type locomotives, has ordered this equipment from the Canadian Locomotive Company.

THE TEXAS, OKLAHOMA & EASTERN has ordered one ten-wheel type locomotive from the American Locomotive Company. This locomotive will have 20 by 26 in. cylinders, and a total weight in working order of 168,000 lb.

THE NEW YORK, NEW HAVEN & HARTFORD, reported in the *Railway Age* of April 2, as about to place orders for locomotives, has ordered from the American Locomotive Company 30 Mountain type and 10 other locomotives.

PORTLAND TERMINAL RAILROAD (Maine Central) has ordered two six-wheel locomotives from the American Locomotive Company. These locomotives will have 21 by 28 in. cylinders and a total weight in working order of 167,000 lb.

THE NEWBURGH & SOUTH SHORE has ordered two 0-8-0 type switching locomotives with a weight of 216,000 lb. on drivers, and two 0-6-0 type switching locomotives, with a weight of 183,000 lb. on drivers from the Baldwin Locomotive Works.

THE NEW YORK CENTRAL, reported in the *Railway Age* of February 27 as being in the market for 100 eight-wheel switching locomotives, has ordered 82 of these locomotives from the Lima Locomotive Works, and has also ordered from the American Locomotive Company 65 Mikado type, 46 Pacific type and 13 Mallet type locomotives.

THE CHESAPEAKE & OHIO, reported in the *Railway Age* of March 19 as being in the market for 20 Mallet type locomotives, has ordered 20 Mallet and five switching locomotives from the American Locomotive Company. The Mallet type engines will have 22 and 35 by 32 in. cylinders, and a total weight in working order of 441,000 lb., and the switching engines will have 27 by 28 in. cylinders, and a total weight in working order of 295,000 lb.

Freight Cars

THE CARNEGIE STEEL COMPANY, Pittsburgh, Pa., is inquiring for 500 steel car bodies.

THE GRAND TRUNK, reported in the *Railway Age* of February 6 as being in the market for 3,000 automobile cars, has ordered

2,000 of these cars from the American Car & Foundry Company, and 1,000 from the Canadian Car & Foundry Company, and has also ordered 1,000 50-ton flat cars from the National Steel Car Corporation.

THE CHICAGO, BURLINGTON & QUINCY has issued inquiries for 500 stock cars.

THE CHICAGO, ROCK ISLAND & PACIFIC, reported in the *Railway Age* of February 27 as being in the market for freight cars, has ordered 500 gondola cars from the Bettendorf Company.

THE PITTSBURG & SHAWMUT has ordered 6 eight-wheel steel underframe caboose cars, two 20-yd. all-steel dump cars from the Kilbourne & Jacobs Manufacturing Company, one steam dumper from the American Hoist & Derrick Company, and one all-steel test weight car from the American Car & Foundry Company.

THE NEW YORK CENTRAL's order for 8,000 freight cars, reported in the *Railway Age* of April 2, was divided as follows: To the Standard Steel Car Company, 3,500 55-ton hopper cars; American Car & Foundry Company, 1,750 hopper cars, and 1,750 double-sheathed box cars; Pressed Steel Car Company, 50 hopper cars, and Haskell & Barker Car Company, 500 box cars.

THE SOUTHERN PACIFIC has arranged to construct 4,065 freight cars in its own shops, as follows:

To Be Constructed by Lines West of El Paso, at Company Shops

Class	For lines west of El Paso	For Tex. and La. lines	Total
Box	750	1,250	2,000
Flat	500	500	
Stock	1,000	500	1,000
Caboose	50	50	50
	2,300	1,250	3,550

To Be Constructed by Texas-Louisiana Lines at Company Shops On Their Own Account

Flat (including 100 for which trucks are available)	500
Caboose	15
Total	515

Passenger Cars

THE SOUTHERN PACIFIC has ordered 58 steel passenger train cars from the Pullman Company for 1920 delivery, including 28, 60 ft. coaches, 25, 60-ft. baggage cars and 5, 70-ft. baggage cars. Of this equipment, 8 of the coaches are for the San Diego & Arizona.

THE NEW YORK CENTRAL, reported in the *Railway Age* of February 20 as being in the market for a number of passenger train cars, has placed orders for 215 cars, as follows: American Car & Foundry Company, 20 coaches and 80 baggage cars; the Standard Steel Car Company, 85 coaches and 15 multiple unit steel suburban cars; Pressed Steel Car Company, 15 combination passenger and baggage cars.

Iron and Steel

SOPHUS BERENDSON, INC., 15 Broad street, New York, has ordered 200 tons of 128 lb. rail and accessories from the United States Steel Products Company, for export to Denmark.

THE NEW YORK, NEW HAVEN & HARTFORD has recently completed the purchase of a number of shop machine tools, including engine lathes, planers, drill presses, crane tractors and trailer trucks, for a number of its shops.

THE WAR DEPARTMENT is offering for sale under sealed proposals 63,437 tons of steel rail and large quantities of track accessories suitable for export. Bids will be received at the office of the chief of engineers, Washington, D. C., until April 26.

THE NATIONAL RAILWAYS OF MEXICO have given an order to the United States Steel Corporation for rivets, bolts, iron pipe, firebox steel plate, tank steel plate, and spring steel to cost \$100,000, and to the Crucible Steel Company, and the Railway Steel Spring Company, for tool steel to cost \$26,000. An order has also been given to the Rome Iron Mills for staybolt iron to cost \$18,000.

Machinery and Tools

SOPHUS BERENDSON, INC., 15 Broad street, New York, is in the market for 100 or more screw jacks, with a lifting capacity of 15 to 20 tons, and a 12 to 15 in. lift, for use in Denmark.

Miscellaneous

THE GREAT NORTHERN is requesting bids for built-up draft arms for reinforcing the ends of 2,000 of its cars.

THE CUBA RAILROAD has ordered from the Wine Railway Appliance Company, Toledo, Ohio, 1,000 ventilators, for use on 500 box cars recently ordered by that road.

THE BOSTON & MAINE has ordered 20 pyrometers from the Locomotive Superheater Company for installation on 20 locomotives recently ordered from the American Locomotive Company.

THE UNION PACIFIC has ordered from the Browning Company, Cleveland, Ohio, three 15-ton cranes for handling coal, and has also ordered from the Industrial Works, Bay City, Mich., three cranes equipped with electro-magnets of 15 tons' capacity.

THE NATIONAL RAILWAYS OF MEXICO have given an order to the United States Rubber Export Company for airbrake hose to cost \$30,000; orders have also been given to J. W. Masury & Sons, Brooklyn, for paint to cost \$20,000, and to Charles R. Long & Co., Louisville, Ky., for paint to cost about \$20,000.

Signaling

THE PENNSYLVANIA RAILROAD (Western Lines) has ordered from the General Railway Signal Company an electric interlocking, 61 working levers, for Island avenue, Pittsburgh, Pa., installation to be done by the railroad company's forces.

THE PENNSYLVANIA (Southwestern region) has ordered an electric interlocking machine, model 2, with 59 working levers, to be installed at Nineteenth street, Richmond, Ind. This interlocking is to be made and installed by the General Railway Signal Company.

THE PENNSYLVANIA SYSTEM, Southwestern region, has awarded a contract to the General Railway Signal Company, Rochester, N. Y., for a Model 2, unit-lever type, electric interlocking machine, to be installed by signal company forces at Richmond, Ind. This machine will have 59 working levers and 13 spare spaces and will be equipped with rotary circuit controllers.

THE PENNSYLVANIA SYSTEM, Central region, has placed an order with the General Railway Signal Company, Rochester, N. Y., for a 72-lever, Model 2, unit-lever type, electric interlocking machine, having 61 working levers and 11 spare spaces. This machine will be equipped with rotary circuit controllers, 42 electric locks and operating switchboard, and will be installed by railroad forces at Pittsburgh, Pa.

Railway Construction

NEW YORK, NEW HAVEN & HARTFORD.—Construction of the large terminals for freight trains and classification at Cedar Hill, New Haven, Conn., and at Providence, R. I., has been resumed, and it is expected that the work will be largely completed by the close of the season.

NEWBURGH & SOUTH SHORE.—Work is to begin at once on the erection of a steel car repair shop at Marcelline avenue, Cleveland, Ohio, at an estimated cost of \$265,600. The main shop will consist of a building 250 ft. long and 70 ft. wide, with four tracks and an overhead crane reaching across all the tracks for the entire length of the building. An annex 40 ft. by 250 ft. for machinery, will also be put up. The buildings will be of brick and steel construction.

IT IS BETTER to allow lawyers to handle lawsuits, contractors to erect buildings, newspaper men to operate their newspapers, physicians to practice medicine and railroad men to run railroads.—*Carson City (Nev.) News*.

Supply Trade News

Charles C. Kilander, Chicago manager of the **American Steam Gauge & Valve Manufacturing Company**, Boston, Mass., died on March 1^o.

M. C. M. Hatch, formerly with the **Pulverized Fuel Equipment Corporation**, New York, has become associated with the **Railway & Industrial Engineers, Inc.**, 25 Broad street, New York.

The H. K. Fairbanks Company, engineers and builders, Cleveland, Ohio, have opened for the convenience of its eastern customers an office at 21 West Forty-third street, New York, in charge of **L. D. Stauffer**.

The Electric Storage Battery Company, Philadelphia, Pa., announces that on April 24, its New York office, which has been for 22 years at 100 Broadway, will be removed to 23 West Forty-third street, New York.

Fred J. Passino, who for many years traveled out of the general offices of the **Independent Pneumatic Tool Company**, Chicago, covering the southwest, has been appointed assistant manager of the eastern division, with headquarters at 1463 Broadway, New York.

D. Gleisan, manager, industrial bearings division of the **Hyatt Roller Bearing Company**, New York, announces that its offices have been removed from 1 Madison avenue, to 100 West Forty-first street, New York, where much larger headquarters have been secured for the advertising, sales and engineering department of the division.

The Campbell-Howard Machine Company, formerly the Sherbrooke Iron Works, Ltd., Sherbrooke, Que., has been purchased by G. L. Bourne and F. A. Schaff, respectively president and vice-president of the **Locomotive Superheater Company**, New York. The company's plant will be utilized partially to manufacture railway supplies for Canadian railroads.

The Hulson Grate Company, Keokuk, Ia., has been incorporated for the purposes of manufacturing and selling engine and locomotive appliances and devices. The amount of capital stock authorized is \$100,000 and the incorporators and officers include, A. W. Hulson, president; B. D. Streeter, vice-president; J. W. Hulson, secretary-treasurer; C. R. Joy; and W. M. Hogle.

N. M. Barker, master mechanic of the Copper Range Railroad, at Houghton, Mich., has resigned to become mechanical superintendent of the **American Automatic Connector Company**, Cleveland, Ohio. He will have supervision of the manufacturing and installation of the connector this company is placing on the market, which is designed to automatically connect steam and air hose on freight and passenger cars.

R. Rivett, supervisor of car repairs for the United States Railroad Administration, with headquarters at Washington, D. C., resigned on March 1 to enter the service of the **Oxweld Railroad Service Company**, New York, as district manager, with headquarters at Chicago. Mr. Rivett was formerly connected with the Chicago, Burlington & Quincy, entering the service of that railroad in 1881, and resigning in 1902 as general car foreman. Subsequently he was appointed general car inspector for the Union Pacific. He left the service of the latter road in 1910 to become general car inspector for the Illinois Central. In 1918 he became supervisor of car repairs for the Railroad Administration, which position he held until his recent appointment.

The Wonham, Bates & Goode Trading Corporation, New York, has been established jointly by Wonham, Bates & Goode, Inc. New York; E. Naumburg & Co., New York, and M. Samuel & Co., Ltd., of London, for the purpose of enlarging and expanding foreign business, both export and import, carried on for many years by Wonham, Bates & Goode, Inc.

at 17 Battery Place, New York. The active management of the company will remain in the hands of the present officers and there has been added to the board of directors George W. Naumburg and William S. Herson of E. Naumburg & Co., Major Julian Day of M. Samuel & Co., Ltd., and Myron S. Falk as chairman of the board. The new company through its new affiliations has the immediate benefit of many foreign connections and branches in addition to those inherited from the old firm. It will be identified commercially with M. Samuel & Co., Ltd.'s, branch houses established for many years in Japan, China, East Indies, etc.

The Carborundum Company, Niagara Falls, N. Y., is carrying out improvements at a cost of about \$500,000, extending and improving its plant at Niagara Falls and its two furnace plants, one at Niagara Falls, Ont., and the other at Shawinigan Falls, Que. A three-story addition to the paper and cloth plant at Niagara Falls has just been finished; it is 432 ft. long and 81 ft. wide and will provide greater facilities for the storing and curing of all carborundum, Garnet and Aloxite paper and cloth products and for the extension of the rubber bonded wheel department. Another addition, just completed, extends one of the wheel-making and kiln departments, the new building being two stories high, 96 ft. long and 64 ft. wide. Both of these new structures are of concrete and are of the most modern type. Other extensions and improvements have been planned and work will be started immediately. These call for additions to the crushing departments and other improvements at the furnace plant at Niagara Falls, Ont., where the abrasive Aloxite is made, and at Shawinigan Falls, Que., where is located an extensive carborundum furnace plant. Besides these buildings the program calls for the extension of at least 14 different departments at the Niagara Falls, N. Y., plant of the Carborundum Company.

Westinghouse Air Brake Company

In his review of the work of the Westinghouse Air Brake Company for the fiscal year ended December 31, 1919, H. H. Westinghouse, chairman of the board, makes the statement that "The business of your company for the fiscal year under review reflects closely the general condition of affairs. While the volume of business has been large, owing to the unsettled condition of the railways the orders received have not been up to normal."

"The return of the railways to private ownership," he continues, "and orders booked during the two months of the current fiscal year indicate a volume of business in our standard line of manufacture equal to, if not exceeding, that of previous years."

The consolidated balance sheet this year includes not only the Westinghouse Air Brake Company, the Union Switch & Signal Company, etc., but also the Locomotive Stoker Company, the latter company being now regarded as a subsidiary rather than as an associated company as in the past. The consolidated balance sheet follows:

ASSETS.	
Cash	\$5,084,848
Accounts and bills receivable	5,577,765
Inventories	12,869,214
Deferred charges to operation	162,437
U. S. Certificates of Indebtedness	1,000,000
Liberty Bonds	2,777,184
Investments	8,131,133
Factories, less depreciation	9,999,129
Real estate, other than for factories	2,093,608
Patents and goodwill (all companies)	5,019,668
	\$52,714,986
LIABILITIES.	
Accounts payable	\$1,107,588
Accrued liabilities	214,110
Contingent liabilities account of sales	161,569
Reserve for federal taxes	\$1,483,267
Capital stock, at par, of subsidiary companies not held by Westinghouse Air Brake Company	2,556,670
Capital stock	39,658
Less held in treasury	78,050
	29,087,750
Accumulated funds:	
(1) Sundry reserves (including amount held against patent and goodwill account)	4,486,803
(2) Pension and workmen's compensation funds (Union Switch & Signal Company)	181,208
(3) Surplus	14,879,630
	19,547,641
	\$48,635,391
	\$52,714,986

Obituary

Charles H. McCullough, Jr., president of the Lackawanna Steel Company, Buffalo, N. Y., died on April 3 in Baltimore, Md. Mr. McCullough had been president of the Lackawanna



C. H. McCullough, Jr.

Steel Company since January 1, 1919, at which time he succeeded E. A. S. Clarke, who became president of the Consolidated Steel Company organized by several steel companies to handle export business. He was born on December 25, 1868, at Philadelphia, Pa., and graduated from Stevens Institute of Technology, Hoboken, N. J., with the degree of mechanical engineer. He was in the service of the Illinois Steel Company for 14 years and when he left had risen to the position of second vice-president

of the company. He then went to the Lackawanna Steel Company and served for 12 years as vice-president and general manager until January 1, 1919, when he was elected president of the same company. Mr. McCullough during 1919 was elected a director of the American Iron & Steel Institute, in the work of which he for many years took an active interest. He was a director of the Consolidated Steel Company, the Pierce-Arrow Motor Car Company, and other industrial organizations.

John N. Derby, vice-president of Manning, Maxwell & Moore, Inc., New York, whose death on March 29 was briefly noted in the *Railway Age* of April 2, was born 53 years ago. He was a graduate of the University of Michigan, and in 1888 organized the Hayden & Derby Manufacturing Company in the state of Michigan. About 30 years ago he became associated with Manning, Maxwell & Moore, and the Hayden & Derby Manufacturing Company was afterwards absorbed by the United Injector Company. Mr. Derby, at the time Manning, Maxwell & Moore was incorporated, was made first vice-president, director and a member of the executive committee. His special end of the business was looking



J. N. Derby

after the brass department, managing the sales of the Ashcroft Manufacturing Company, the Consolidated Safety Valve Company, and the Hancock Inspirator Company, and looking after the general railroad trade covering these lines. He was the inventor of the Metropolitan injector used on steam engines and locomotives.

Trade Publications

LOCOMOTIVE CHART.—The Angus Sinclair Company, New York, has recently prepared a chart of a Pacific type locomotive showing a longitudinal cross section and a rear view of the interior of the cab. The detail parts are numbered and the names are given in a list printed on the sheet.

Railway Financial News

ATCHISON, TOPEKA & SANTA FE.—Arthur T. Hadley, president of Yale University; Frederick A. Juillard, of New York, and J. E. Otis, of Chicago, have been elected directors to fill existing vacancies.

ATLANTA & WEST POINT.—This company has executed a compensation contract with the Railroad Administration for \$252,995 a year.

BOSTON & MAINE.—The Maine Public Utilities Commission has authorized this company to issue \$7,000,000 6 per cent equipment notes. These notes shall be issued in 15 serials of equal amounts and shall mature respectively on January 15 in each of the years 1921 to 1935, inclusive.

CHICAGO GREAT WESTERN.—President Felton says: "The Chicago Great Western will not declare any more dividends until we know just what is to be expected in the way of adjustment with the government and advances in rates. The whole transportation financial problem is fraught with uncertainties and we must know just where we stand before acting upon preferred dividends."

"The company has asked the Interstate Commerce Commission for a loan of \$2,000,000 from the new loan revolving fund appropriated by the Transportation Act of 1920."

HOCKING VALLEY.—Maurice S. Connors, of Columbus, Ohio, has been elected a director to succeed W. L. Ross, of Toledo, Ohio.

ILLINOIS CENTRAL.—The War Finance Corporation announced on March 31 that this company has paid off its loan of \$5,700,000, this being the unpaid balance of loans originally amounting to \$12,000,000.

THE ILLINOIS SOUTHERN.—This road, running from Salem, Ill., to Bismarck, has been purchased by a syndicate of Chicago men, according to a recent announcement made by James B. Forgan, chairman of the board of directors of the First National Bank, Chicago, to the Chicago Clearing House Association. The road has not been in operation since December 12, 1919, when Federal Judge Carpenter, at Chicago, ordered its operation suspended because the road was incurring deficits.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—Equipment notes to the amount of \$500,000, maturing in blocks of \$50,000 annually until 1930, were placed on sale April 1 by the Minneapolis Trust Company, the Minnesota Loan & Trust Company, the First National and Northwestern National Banks of Minneapolis.

NEWPORT & SHERMAN'S VALLEY.—Rodney Gring, of Newport, Pa., has purchased this road for \$40,000. The company was organized in 1890 by the late David Gring, father of the new owner. It operates between Newport, Pa., and Germantown, 31 miles.

PENNSYLVANIA.—Kuhn, Loeb & Co. are forming a syndicate to offer an issue of \$50,000,000 ten-year 7 per cent bonds at par and accrued interest. The new bonds are to be secured by \$50,000,000 general mortgage 6 per cent bonds of the Pennsylvania Railroad Company and \$5,000,000 new general mortgage 6 per cent bonds of the Philadelphia, Baltimore & Washington Railroad.

PENNSYLVANIA.—A special meeting of the stockholders of the Pittsburgh, Cincinnati, Chicago & St. Louis will be held in Pittsburgh on May 27 for the purpose of authorizing the issue of \$35,000,000 5 per cent general mortgage bonds, \$20,000,000 of which will be issued at once to reimburse the Pennsylvania company for advances made to cover the improvement and extension of the property.

PENNSYLVANIA.—The number of stockholders on March 1, last, was 121,586, an increase of 1,273 over February 1 and an increase of 13,040 over a year ago.

PITTSBURGH, CINCINNATI, CHICAGO & ST. LOUIS.—See Pennsylvania.

Railway Officers

Executive

E. E. Adams, consulting engineer of the Union Pacific system, with headquarters at New York, has been appointed assistant to the president, with headquarters at Omaha, Neb., in charge of purchases, engineering and standards.

John J. Corcoran, assistant to the general manager of the Great Northern, with headquarters at St. Paul, Minn., has been appointed assistant to the vice-president in charge of operation, with the same headquarters. Mr. Corcoran was born at Port Huron, Mich., on December 9, 1875. He entered railway service in 1895 as a locomotive fireman on the Great Northern. He was subsequently promoted to engineman and later was appointed superintendent of stations, after which he was promoted to assistant to the general manager, the position he held prior to his recent promotion.

Norman Call, who has been elected vice-president of the Richmond, Fredericksburg & Potomac, with headquarters at Richmond, Va., as noted in the *Railway Age* of March 5 (page 747), served as assistant to the president and secretary of the same road from April, 1917, until the termination of federal control. Mr. Call was born at Richmond, Va., on March 29, 1880. He was educated in the public schools of that city and graduated from the Virginia Mechanics' Institute. His entire railroad service has been with the Richmond, Fredericksburg & Potomac. On November 1, 1901, he began work as secretary and chief clerk to the president and remained in that position until September 30, 1910, when he became also secretary and chief clerk to the secretary of the company. In April, 1917, he was appointed assistant to the president and secretary, as noted above.

Robert B. Pegram, who has been elected vice-president and resident executive officer at Atlanta, Ga., of the Southern Railway as noted in the *Railway Age* of March 5 (page 749), served during the greater part of the period of federal control as general purchasing agent with headquarters at Washington. Mr. Pegram was born on August 22, 1874, at Marion, Ala. He received a private school education and began railroad work on July 1, 1890 as utility clerk in the office of the assistant general freight agent of the Memphis & Charleston, now the Memphis division of the Southern, at Memphis, Tenn. From 1890 until 1895 he served in various clerical capacities in the freight traffic department. He was appointed chief clerk of the Memphis freight bureau in 1895 and later became chief clerk in the assistant general freight agent's office of the Illinois Central. From 1896 until 1899 he acted as chief clerk to the assistant general freight agent of the Southern at Memphis and was then transferred to the freight claim office at Washington, D. C. In 1902 he went to Birmingham, Ala., as chief clerk to the division freight agent, the soliciting freight agent and the commercial freight agent. He was promoted to chief clerk to the vice-president with headquarters at St. Louis, Mo., in April, 1905, and retained that position until December of the same year. From that time until July, 1908, he was assistant general freight agent and general freight agent respectively, with headquarters at Nashville, Tenn. He was transferred to Charleston, S. C.,



N. Call

in 1908 and remained there until May, 1910. He was then appointed executive general agent in the executive department at Charleston and transferred to Memphis in the same capacity in January, 1917. He was appointed general purchasing agent with headquarters at Washington in July, 1918.

George A. Harwood, who has been appointed assistant to the president of the New York Central Lines, with headquarters at the Grand Central Terminal, New York, as noted in the *Railway Age* of February 27 (page 659), served during the greater part of federal control as corporate chief engineer. Mr. Harwood was born on August 29, 1875, at Waltham, Mass. He graduated from Tufts College with the degree of B. S. in civil and electrical engineering in 1898; in 1901 he received the degree of M.S. in the same sciences and again in 1913 the honorary degree of master of science. He began railroad work in 1893 in the engineering department of the Fitchburg Railroad, now part of the Boston & Maine, and with the exception of the time spent in college he remained with that road until 1900, when he entered the employ of the New York Central. From April, 1900, until November 1, 1906, he held various subordinate positions in the engineering departments of that road. He was then appointed chief engineer, electric zone improvements, in charge of the construction of the Grand Central Terminal and general improvements of the electric zone, later handling in addition special work in connection with west side improvements in New York city, and other developments in Buffalo, Cleveland and other places. On July 1, 1916, he became engineering assistant to the vice-president, New York Central Lines, which position he retained until June 10, 1918, when he was appointed engineering assistant to the federal manager of the New York Central Railroad. The following July he was appointed corporate chief engineer of all the roads embraced in the New York Central Lines.



G. A. Harwood

Financial, Legal and Accounting

W. J. Conaty has been appointed valuation auditor and member of the valuation committee of the Chesapeake & Ohio with headquarters at Richmond, Va., effective April 1.

Thomas M. Cunningham Jr., who has been appointed general counsel of the Central of Georgia with headquarters at Savannah, Ga., as noted in the *Railway Age* of March 5 (page 738), was born on January 30, 1869 at Savannah, Ga. He graduated from the University of Georgia in 1888 and on August 1, 1892, became a member of the firm of Lawton & Cunningham, general counsel for the Central of Georgia and the Ocean Steamship Company of Savannah. During federal control he was appointed federal solicitor, and upon the return of the road to private control he became general counsel.

Albert V. B. Gilbert, who has been appointed secretary of the Atlanta, Birmingham & Atlantic, as noted in the *Railway Age* of March 12 (page 800), served during the greater part of federal control as chief clerk to the federal manager of the same road and of the Atlanta & West Point, the Georgia and others. Mr. Gilbert was born on December 12, 1885, at Paducah, Ky. He received a public school education and began railroad work on June 1, 1902, as stenographer in the general agent's office of the Mobile & Ohio. In December of the same year he went to the superintendent's office of the Mobile, Jackson & Kansas City, now the Gulf, Mobile & Northern, but returned to the Mobile & Ohio on August 1, 1903, to serve as chief clerk in the office of the general agent at Mobile, Ala. He became solicitor

ing freight agent in June, 1905, and retained that position until July 1, 1909, when he was appointed general freight and passenger agent of the Alabama, Tennessee & Northern and the Toledo Valley, with headquarters at Mobile. On March 1, 1910, he was appointed solicitation clerk of the Atlanta, Birmingham & Atlantic, with headquarters at Atlanta, Ga., which position he retained until June 1, 1917, when he became division freight agent at Fitzgerald, Ga. He was appointed chief clerk to the president of the same road on May 13, 1918, and on the date mentioned above he was transferred as chief clerk to the federal manager.

Clayton E. Hildum, who has been appointed comptroller of the Lehigh Valley with headquarters at New York, as noted in the *Railway Age* of March 5 (page 743), served

during federal control as manager of the accounting section of the Railroad Administration. Mr. Hildum was born at Jamestown, N. Y., and graduated from Wittenberg College in Springfield, Ohio, in 1897. He entered railway service in the accounting department of the Erie on March 1, 1898. In 1905, he was appointed traveling auditor and in 1909, chief clerk to the auditor. He was promoted to auditor of disbursements in 1911. In 1913 he became auditor of freight accounts, which position he retained



C. E. Hildum

until his appointment as manager of the accounting section in 1918.

Herbert A. Taylor who has been appointed general solicitor of the Erie with headquarters at New York, as noted in the *Railway Age* of March 26 (page 1079), served from May, 1919, until the termination of federal control as general assistant to the director general of railroads. Mr. Taylor was born on October 6, 1876, at Beverly, N. J. He graduated from Cornell University with the degree of A. B. in 1897 and from the University of Buffalo law school in 1898. He entered railway service in the legal department of the Erie as managing clerk in July, 1899. He remained in that capacity until 1904 when he was appointed assistant general solicitor.



H. A. Taylor

From July until October, 1912, he served as commerce counsel of the same road. He was then appointed general attorney and retained that title until June, 1918. In March of that year he was appointed assistant to Walker D. Hines, then assistant director general of railroads. When Mr. Hines succeeded William G. McAdoo as director general, Mr. Taylor took the title of assistant to the director general.

Operating

J. L. East, superintendent of freight service of the Illinois Valley, has been appointed superintendent of stations and transfers and **C. G. Richmond** has been appointed assistant superintendent of stations and transfers, effective April 1.

W. B. Kirkland has been appointed assistant trainmaster on the Stockton division of the Southern Pacific, with headquarters at Tracy, Cal., effective April 1.

H. H. Hooper, superintendent on the St. Louis Southwestern, with headquarters at Mt. Pleasant, Tex., has been transferred to Pine Bluff, Ark., succeeding M. J. Kennelly, who has been transferred.

Harry E. Speaks, who has been appointed general manager of the Toledo & Ohio Central and the Kanawha & Michigan, with headquarters at Columbus, Ohio, as noted in the *Railway Age* of March 19 (page 996), has been superintendent of these same roads since July 1, 1909.



H. E. Speaks

Mr. Speaks was born on June 18, 1872, at Canal Winchester, Ohio. He received a public school education and began railroad work in September, 1888, as a messenger for the Hocking Valley. From 1890 until 1893 he served consecutively as yard clerk, telegraph operator and station agent. He became chief clerk to the division superintendent in 1893 and retained that position until 1895, when he became chief clerk to the general superintendent.

T. H. Lantry, assistant general manager of the Northern Pacific with headquarters at St. Paul, Minn., has been appointed superintendent of the Montana division with headquarters at Livingston, Mont., succeeding **W. C. Showalter** who returns to his former position as trainmaster at Missoula, Mont., effective April 1.

W. A. Baldwin, who has been appointed manager of the Ohio region of the Erie, with headquarters at Youngstown, Ohio, under the road's new plan of organization, was born on July 26,



W. A. Baldwin

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1876, at Elmira, N. Y. He graduated from Cornell University in 1896 and began railroad work the same year as a chainman for the Erie. In May, 1899, he was promoted to rodman and some time later to assistant engineer. From March, 1902, until September, 1903, he acted as trainmaster. He was then appointed division engineer and retained that position until 1909, from which time until December, 1910, he again served as trainmaster. He was promoted to superintendent of the Chicago and Lima divisions in 1910 and was transferred to the Jefferson and Delaware divisions in May, 1912. Afterwards he was promoted to general superintendent of the Lines East of Salamanca and in 1917 was transferred to the Lines West with headquarters at Youngstown. He was appointed transportation assistant with jurisdiction over transportation matters formerly in charge of the general manager in June, 1918, and a month later was appointed general manager.

W. S. Joy has been appointed acting trainmaster on the Salt Lake division of the Southern Pacific, with headquarters at Mina, Neb., with jurisdiction over the Mina sub-division, effective April 1, succeeding **D. M. Mergen**, assigned to other duties.

Lockett G. Coleman, general manager of the Grand Trunk Lines in New England during federal control, who has been appointed assistant general manager of the Boston & Maine, with headquarters at Boston, Mass., was born on December 7, 1877, at Macon, Ga. He graduated from Harvard University in 1899, and began railroad work on October 1, 1900, in the motive power department of the Grand Trunk. In April, 1901, he went to the Delaware, Lackawanna & Western, where he served in various capacities in the motive power department. He became assistant to the general manager of the Rogers Locomotive Works in December, 1901, but returned to the Grand Trunk as assistant to the superintendent at Allandale, Ont., in May, 1902. He was appointed trainmaster at Montreal, Que., in October, 1903, and was promoted to assistant superintendent, with headquarters at Ottawa, Ont., in May, 1906. In December of the same year he was transferred to Belleville, Ont., and was promoted to superintendent at Ottawa in May, 1910. He became general manager of the Grand Trunk Lines in New England in June, 1918.



L. G. Coleman

Michael H. Cahill, who has been appointed general manager of the Seaboard Air Line, as noted in the *Railway Age* of February 27 (page 658), served as general superintendent of the Maryland district of the Baltimore & Ohio from November, 1917, until the termination of federal control. Mr. Cahill was born at Lexington, Ohio, in 1874. He graduated from the Lexington high school in 1891. His first railroad service, begun in 1886, was as a messenger boy for the Baltimore & Ohio. Afterwards he became operator and despatcher. He served as division operator in 1905 and retained that position until 1910, when he was appointed trainmaster. He was promoted to assistant superintendent in January, 1912, and the following August became superintendent. In November, 1912, he left the Baltimore & Ohio to accept a position with the Delaware, Lackawanna & Western as a division superintendent, but returned to the Baltimore & Ohio, in May, 1913, as assistant superintendent of the Cumberland division with headquarters in Keyser, W. Va. He subsequently became superintendent of the New Castle division at New Castle, Pa. In 1916 he was promoted to general superintendent of the Pennsylvania district, with headquarters at Pittsburgh, Pa., being later transferred to the Maryland division, with headquarters at Baltimore, Md.



M. H. Cahill

G. V. Peyton, superintendent of the East Carolina division of the Seaboard Air Line, has been transferred to the North

Carolina division with headquarters at Hamlet, N. C., succeeding **E. C. Bagwell**, who has been transferred to the East Carolina division with headquarters at Charleston, S. C. succeeding Mr. Peyton, effective April 5.

Henry B. Voorhees, who has been appointed general manager of the New York terminal lines of the Baltimore & Ohio, with headquarters at New York, as noted in the *Railway Age* of March 5 (page 737), is promoted to this position from that of manager of the New York terminal lines. Mr. Voorhees was born on January 22, 1876, at Saratoga Springs, N. Y. He graduated from the Rensselaer Polytechnic Institute with the class of 1896 and began railroad work on March 1, 1897, as assistant supervisor for the Philadelphia & Reading. He remained with that road in various positions until December 1, 1901, when he went to Baltimore & Ohio as assistant engineer at Pittsburgh, Pa., in which capacity he served until July 1, 1902. He then became division engineer at Baltimore, Md., and on September 1, 1903, was appointed assistant to the general superintendent of transportation. He was transferred to Philadelphia on February 1, 1905, as superintendent and general agent, but returned to Baltimore on June 1, 1909, as assistant to the president. He was appointed general superintendent of transportation in 1910 and general superintendent with headquarters at Cincinnati, Ohio, in 1911. On October 1, 1917, he was promoted to general superintendent of transportation with headquarters at Baltimore. He became manager of the New York terminal lines on July 15, 1919.



H. B. Voorhees

James E. Hutchison, whose appointment as general manager of the St. Louis-San Francisco was announced in the *Railway Age* of March 5 (page 747), was born at Washburn, Ill. He began railway service as a telegraph operator on the Chicago & Alton at the age of 13 years, and at 16 years of age was promoted to train despatcher. Prior to March 1, 1903, he was successively despatcher, chief despatcher and trainmaster, with the exception of a year when he served as a despatcher on the Denver & Rio Grande, with headquarters at Pueblo, Col., and on the Union Pacific as a despatcher at Denver, Col. In March, 1903, he was employed as a train despatcher on the St.



J. E. Hutchison

Louis-San Francisco and in July, 1904, was promoted to superintendent of terminals at Kansas City, Mo. From June 1, 1906, to August 21, 1907, he was superintendent of the Northern division with headquarters at Fort Scott, Kan., retaining jurisdiction over the Kansas City terminals. On August 21, 1907, he was promoted to general superintendent of the first district and on December 15, 1909, was transferred to the second district which position he held at the time of his appointment as general manager, effective March 1, 1920. He succeeds J. M. Kurn, notice of whose election as presi-

dent of the St. Louis-San Francisco appeared in the *Railway Age* of February 27, page 658.

R. Boone Abbott, who has been appointed assistant general superintendent of the Philadelphia & Reading, with headquarters at Reading, Pa., as noted in the *Railway Age*



R. B. Abbott

of March 5 (page 746), served during the greater part of federal control as superintendent of the New York division of the same road. Mr. Abbott was born on July 14, 1881, at Philadelphia. He graduated from the Pottsville High School in 1900. After taking a two months' post graduate course in higher mathematics, he entered the employ of the Reading as a clerk in the office of the superintendent at Tamaqua, Pa., on October 1, 1900. The following September he was appointed assistant super-

visor and as such served at Tamaqua, Milton, Reading and Harrisburg, Pa. On June 6, 1905, he was promoted to supervisor. He was appointed division engineer at Harrisburg on March 9, 1910, and on March 17, 1916, he became superintendent of the Shamokin division, with headquarters at Tamaqua. He was transferred to the Harrisburg division, with headquarters at Harrisburg, on March 28, 1916, and on July 16, 1918, he was transferred to Philadelphia as superintendent of the New York division.

Claude C. Ray, whose appointment as assistant general manager and traffic manager of the De Queen & Eastern, and of the Texas, Oklahoma & Eastern, with headquarters at De Queen, Ark., was announced in the *Railway Age* of February 20 (page 597), was born at Joplin, Mo., on March 2, 1883. He entered railway service as a clerk in the office of the general freight and passenger agent of the De Queen & Eastern in 1903. On September 1, 1903, he was employed as a stenographer in the office of the vice-president and general manager of the De Queen & Eastern, and also as a stenographer for the Dierks Lumber & Coal Company, De Queen, Ark. Three years later he was employed as chief clerk



C. C. Ray

in the office of the general freight and passenger agent of the De Queen & Eastern, which position he held until May 1, 1907, when he became office manager of the Waterman Lumber Supply Company, Waterman, Tex. On August 1, 1907, he was promoted to manager of the Waterman Lumber Supply Company, and the following year again entered railway service as general freight and passenger agent and assistant auditor and assistant treasurer of the De Queen & Eastern, with headquarters at De Queen. On June 7, 1911, his authority was extended over the traffic, accounting and treasury departments of the Texas, Oklahoma & Eastern, which position he retained until January 1, 1920, when he was appointed assistant general manager and traffic manager of the De Queen & Eastern and the Texas, Oklahoma & Eastern, having jurisdiction over the operating, traffic accounting and treasury departments, also being in charge of the valuation of these two

S. W. Crabbe, superintendent of the Schreiber division of the Algoma district of the Canadian Pacific with headquarters at Schreiber, Ont., has been transferred to the Smith Falls division, Quebec district, succeeding **T. A. Wilson** who has been transferred to the Sudbury division with headquarters at Sudbury, Ont. Mr. Wilson succeeds W. R. Boucher who has been transferred to the Chapleau division with headquarters at Chapleau, Ont., succeeding **W. C. Guthrie**, who has been transferred to the Schreiber division to succeed Mr. Crabbe, all effective April 1.

Traffic

E. W. White has been appointed general agent of the Central-Savannah Line with headquarters at St. Louis, Mo., effective April 1.

Peter N. Butzen has been appointed district passenger agent of the Chicago Great Western, with headquarters at Chicago, effective April 1.

R. W. Smallwood has been appointed freight and passenger agent of the Maryland & Pennsylvania with headquarters at Baltimore, Md., effective April 1.

R. H. Wallace who has been appointed passenger traffic manager of the Erie with headquarters at New York, as noted in the *Railway Age* of March 26 (page 1079), served during the greater part of federal control as a member of the passenger traffic committee, for the Eastern Allegheny and Pocahontas regions of the Railroad Administration. Mr. Wallace was born at Zanesville, Ohio, and received a public school education in Crawford County, Pa. He began railroad work as station agent and telegraph operator for the Atlantic & Great Western, now part of the Erie at Geneva, Pa. In March, 1875, he was transferred to a similar position on the New York, Pennsylvania & Ohio, now also part of the Erie, at Lakewood, N. Y., in November, 1880. Later he was transferred to Atlantic, Pa. In March, 1887, he was appointed passenger and ticket agent of the same road at Oil City, Pa. He was promoted to traveling passenger agent, with headquarters at Akron, Ohio, in March, 1892, and while serving in that capacity was transferred to Youngstown, Ohio, in 1894. He was appointed general agent of the Erie, with headquarters at Cleveland, Ohio, in May, 1896, and in March, 1902, he became assistant general passenger agent, with the same headquarters. He was promoted to general passenger agent, with headquarters at New York, in January, 1905. In April, 1918, he became a member of the passenger traffic committee, as mentioned above. In 1912-1913 Mr. Wallace was president of the Passenger Traffic Officers' Association and in 1913-1914, president of the New York Traffic Club.

A. C. Hultgren has been appointed assistant general freight agent of the Chicago, Terre Haute & Southwestern, with headquarters at Chicago, effective April 1.

Harry Wilson, general freight agent of the Erie with headquarters at New York, has resigned and has been appointed senior member, auxiliary committee, Trunk Line Association, freight department, effective April 1.

Clarence L. Chapman, acting general passenger agent of the Erie with headquarters at New York, has been appointed general freight agent with the same headquarters succeeding Harry Wilson, resigned, effective April 1.

John T. Carter has been appointed commercial agent of the Seaboard Air Line with headquarters at Savannah, Ga., succeeding **C. E. Felton**, resigned; **John T. Baird** has been appointed commercial agent at Detroit and **Henry C. Thompson** at Nashville, Tenn.

Robert J. Carmichael, whose appointment as assistant general passenger agent on the Illinois Central and the Yazoo & Mississippi Valley, with headquarters at Memphis, Tenn., was announced in the *Railway Age* of March 5 (page 743), was born at Chicago in 1880. He entered railway service in 1897 as a clerk in the office of the general passenger agent of the Illinois Central at Chicago. He was later promoted to passenger agent of the same road at St. Louis, Mo., and to traveling passenger agent at Cincinnati, Ohio. Several years later he was made city passenger agent of the same road at Chicago and later was promoted to district passenger agent, with the same headquarters. Prior to his present appointment as assistant passenger agent at Memphis, he was, successively, division passenger agent at Chicago and instructor of passenger train and station employees, with the same headquarters.

W. F. Griffitts, general passenger agent of the Delaware, Lackawanna & Western, has taken over the duties heretofore performed by **George A. Cullen**, passenger traffic manager, who has resigned, effective April 1. **W. H. Dominick** has been appointed assistant general passenger agent of the same road.

Charles W. Kieswetter, whose appointment as traffic manager of the Duluth, Missabe & Northern, with headquarters at Duluth, Minn., was announced in the *Railway Age* of March 5 (page 740), was born in Queens county, N. Y., in October, 1871. He entered railway service in September, 1891, as a clerk in the general freight and passenger department of the St. Paul & Duluth, now part of the Northern Pacific. In July, 1893, he was employed as a chief clerk on the Duluth, Missabe & Northern at Duluth, and two years later was transferred to the auditor's office. In July, 1897, he was appointed a traveling auditor and chief clerk and in January, 1906, was appointed a general agent in the freight and passenger department. In November, 1914, he was appointed assistant general freight agent, which office he held until August, 1918, when he was promoted to general freight and passenger agent. This position he held at the time of his promotion to traffic manager.

George Krause, Jr., who has been appointed general freight agent of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Cincinnati, Ohio, as noted in the *Railway Age* of March 19 (page 994), served as assistant general freight agent from January, 1911, until the termination of federal control. Mr.

Krause was born on April 27, 1861, at Cleveland, Ohio. He received a public school education. His entire railroad service has been with the road of which he is now general freight agent. He entered its employ on September 1, 1877. In May, 1884, he became contracting agent and in 1901 commercial agent. He was appointed division freight agent in August, 1909, and retained that position until his appointment as assistant general freight agent, as mentioned above.

Richard Van Ummersen, who has been appointed freight traffic manager of the Boston & Albany, with headquarters at Boston, Mass., as noted in the *Railway Age* of March 5 (page 738), has been general freight agent of that road since 1911. Mr. Van Ummersen was born in Boston, Mass., on December 14, 1874. His entire railroad service has been with the Boston & Albany, the employ of which he entered on July 26, 1891, in the ticket auditor's office. In that office he served in various capacities until 1896, when he was transferred to the general freight office. While there he was promoted to chief clerk. On June 1, 1906, he was appointed division freight agent at Worcester, Mass., but returned to Boston on November 2, 1907, as assistant general freight agent. He was appointed general freight agent on June 5, 1911.

George C. Manning, who has been appointed general freight and passenger agent of the Ohio region of the Erie, with headquarters at Youngstown, Ohio, as noted in the *Railway Age* of February 27 (page 662), served from March 1, 1919, until the termination of federal control as assistant general freight agent of the same road at Chicago. Mr. Manning was born on September 3, 1874, at Lockport, N. Y. He graduated from the Lockport High School and began railroad work in October, 1889, as a clerk in the freight office of the Erie at Lockport. Afterwards he served in other clerical capacities in the same office and in Tonawanda, N. Y. He became agent at Lockport in May, 1903, and in May, 1904, was transferred to Buffalo as contracting freight agent. In May, 1907, he went to New York in the same capacity, and in October, 1909, was appointed division freight agent. While acting as division freight agent he was transferred to Elmira, N. Y., and on November 15, 1916, was appointed general agent at Youngstown, Ohio. In August, 1918, he was promoted to assistant general freight agent with the same headquarters, having jurisdiction over the lines west of Buffalo, and on March 1, 1919, was transferred, as mentioned above, to Chicago.

William T. Stevenson, who has been appointed traffic manager of the Cleveland, Cincinnati, Chicago & St. Louis, as noted in the *Railway Age* of March 26 (page 996), served as chairman of the Cincinnati district freight traffic committee during federal control. Mr. Stevenson was born at Covington, Ky.,



R. J. Carmichael



R. Van Ummersen



C. W. Kieswetter



G. C. Manning

on September 20, 1873, and graduated from the high school there. He began railroad work in 1896 as secretary to the freight traffic manager of the Cleveland, Cincinnati, Chicago & St. Louis. He was afterwards appointed chief clerk to the assistant general freight agent. He then became, consecutively, traveling freight agent, division freight agent and chief of the tariff bureau. He was appointed assistant general freight agent in 1914 and general freight agent in 1916. His next position was as chairman of the district freight traffic committee, as mentioned above.

J. W. Allison who has been appointed freight traffic manager of the Western Maryland with headquarters at Baltimore, Md., as noted in the *Railway Age* of March 12 (page 807) served as assistant to the central territory freight traffic committee of the Railroad Administration during the greater part of federal control. Mr. Allison began railroad work as messenger in the general freight department of the Erie at Cleveland, Ohio on December 23, 1893. He filled various clerical positions until July 2, 1903, when he became chief clerk to the assistant general freight agent at Chicago. On May 16, 1906 he became chief clerk in the general freight department of the Cincinnati, Hamilton & Dayton at Cincinnati, Ohio. The following July he was appointed assistant general freight agent of that road. On September 7, 1909, he was promoted to general freight agent, and filled that position until the consolidation, of operation of the Baltimore & Ohio Southwestern and the Cincinnati, Hamilton & Dayton when he became freight tariff agent of both. He was appointed assistant general freight agent of the two companies on January 1, 1913. Upon the establishment of the permanent Official Classification Committee in December, 1915, he became a member of that committee and served in that capacity until August 1, 1918 when he was appointed to serve under the Railroad Administration central territory freight traffic committee with headquarters at Chicago.

R. L. Helstrom has been appointed commercial agent of the Carolina, Clinchfield & Ohio, with headquarters at Chicago; **E. S. Hiner** has been appointed commercial agent at Cincinnati, Ohio; **L. E. Sauer**, commercial agent at Columbus, Ohio, and **Robert Hunter**, commercial agent at Pittsburgh, Pa., effective March 1.

George E. Boulineau, who has been appointed general freight agent of the Atlanta & West Point, with headquarters at Atlanta, Ga., as noted in the *Railway Age* of March 12 (page 801), served during the greater part of federal control as assistant staff traffic officer on the staff of the regional director of the Southern region. Mr. Boulineau was born in Augusta, Ga., on May 11, 1884. He graduated from the high school at Charleston, S. C., in 1901. On November 1, 1902, he began railroad work as clerk in the traffic department of the Central of Georgia. He went to the Southern in 1904 as clerk, and remained there until 1905, when he accepted the position of secretary to the general freight agent of the Georgia. Soon afterwards he became executive clerk and then chief rate clerk, chief clerk and assistant general freight agent, respectively. On July 1, 1918, when the operation of the Georgia was consolidated under government control with several other southern lines, he was appointed assistant general freight agent of the consolidated system. Subsequently he became assistant staff traffic officer for the Southern region, as mentioned above.

George T. Atkins, Jr., whose appointment as freight traffic manager of the Missouri, Kansas & Texas Lines, with head-

quarters at Dallas, Tex., was announced in the *Railway Age* of March 5 (page 745), was born at Petersburg, Va., on August 13, 1878. He entered railway service on October 1, 1897, as a messenger and clerk in the auditor's office of the Missouri, Kansas & Texas of Texas. From 1901 to 1906, he was successively file clerk, rate clerk, cotton clerk and chief rate clerk in the general freight office of the same road at Dallas, Tex. On October 1, 1906, he was appointed commercial agent at Dallas, and, later in the same year, was chief clerk in the general freight office of the Katy at Dallas. On June 1, 1910, he was appointed traffic manager of the Shreveport, La., Chamber of Commerce, which position he retained until July 1, 1918, when he was appointed traffic assistant in the Division of Public Service and Accounting of the United States Railroad Administration, with headquarters at Washington. Later in the same year he was promoted to assistant to the director of the Division of Public Service, and, in 1919, was promoted to assistant director of the same division. This position he retained until the time of his appointment as freight and traffic manager of the Missouri, Kansas & Texas Lines.

Harry R. Lewis, who has been appointed freight traffic manager of the southwest region of the Baltimore & Ohio, with headquarters at Cincinnati, Ohio, as noted in the *Railway Age* of March 5, 1920 (page 738), was born on March 25, 1872, at Mattoon, Ill. He began railroad work in December, 1889, in the freight office of the Missouri, Kansas & Texas, at Sedalia, Mo. From 1891 until 1896 he served as clerk in the general freight office of the Cleveland, Cincinnati, Chicago & St. Louis, at Cincinnati, Ohio. He went to the Baltimore & Ohio in 1897 as tariff clerk at Baltimore, Md., and afterwards became rate clerk and chief clerk, respectively. In 1912, he was appointed division freight agent at Baltimore, being promoted to general freight agent in 1913 and retaining that position until 1916. He was appointed general freight agent, with headquarters at Pittsburgh, Pa., in 1917. During the period of federal control he was a member of the trunk line freight traffic committee at New York. Mr. Lewis also served as a member of the official classification committee from 1913 to 1916.

Mechanical

Edwin B. DeVilbiss, who has been appointed superintendent of motive power of the Eastern Ohio division, central region of the Pennsylvania, with headquarters at Pittsburgh, Pa., as noted in the *Railway Age* of February 20 (page 599) was assistant engineer of motive power in the office of the general superintendent of motive power of the Lines West from October 15, 1917, until the termination of federal control. Mr. DeVilbiss was born on September 13, 1884, at Fort Wayne, Ind. He graduated from Purdue University in 1908 with the degree of mechanical engineer and entered the employ of the Pennsylvania Lines West on July 1, 1908, as a special apprentice. He was promoted to motive power inspector on January 1, 1911, to electrical engineer of the Northwest system on April 1, 1912, and to assistant engineer of motive power of the Central system on June 1, 1915, and to assistant engineer of motive power in the office of the general superintendent motive power on October 15, 1917, as above noted.

W. R. Parker, road foreman of engines of the Southern Pacific at Stockton, Cal., has been transferred to West Oakland, Cal., succeeding **E. E. House**, retired because of ill health.



J. W. Allison



E. B. De Vilbiss

G. B. Jefferis has been appointed road foreman of engines of the Stockton division of the Southern Pacific, with headquarters at Tracy, Cal., succeeding **W. R. Parker**, transferred, effective April 1.

George T. Depue, who has been appointed mechanical superintendent of the newly-created Chicago region of the Erie, as noted in the *Railway Age* of February 27 (page 662), served as shop superintendent of the same road at Susquehanna, Pa., from July 1, 1916, until the termination of federal control. Mr. Depue was born on December 2, 1872, at Hornell, N. Y., and received a grammar school education. On March 1, 1889, he entered the employ of the Erie as a machinist apprentice. He afterwards worked as a machinist and extra gang foreman until March 1, 1901, when he was promoted to the position of general foreman of the Bradford division, with headquarters at Bradford, Pa. On August 1, 1901, he was appointed general foreman of the Hornell shop; on July 1, 1903, master mechanic at Hornell; on April 1, 1908, master mechanic at Galion, Ohio, and on August 1, 1913, shop superintendent at Galion, holding that position until July 1, 1916, when he was appointed shop superintendent at Susquehanna, Pa.



G. T. Depue

Amos C. Davis, who was appointed superintendent motive power of the Southern division, eastern region of the Pennsylvania system, as noted in the *Railway Age* of February 20 (page 598), served as master mechanic of the Maryland division during the greater part of federal control. Mr. Davis was born on March 20, 1876, at Altoona, Pa. He was educated in public and private schools in Indiana County, Pa. His entire railroad service, dating from April 3, 1893, has been with the Pennsylvania, his first position being that of machinist apprentice at the Altoona shops. At the end of his apprenticeship he was employed as a machinist for about two years and was then made gang leader in the erecting shop. After several minor promotions he was appointed acting assistant master mechanic at Altoona on March 8, 1909, and on April 1, 1910, foreman of the miscellaneous shop. For five years, or from July, 1912, to July, 1917, he was general foreman of the locomotive erecting shop at Altoona. On the latter date he was made general foreman at East Altoona, and in October of that year general foreman of the Altoona machine shop. On October 21, 1918, Mr. Davis was appointed master mechanic of the Maryland division, with headquarters at Wilmington, Del.



A. C. Davis

Engineering, Maintenance of Way and Signalling

C. R. Stewart has resigned from his position as consulting engineer in the executive department of the Erie to engage in other business.

C. J. Parker, principal assistant engineer of the New York Central lines east of Buffalo, with headquarters at New York,

has been appointed chief fire protection engineer, a newly created position, effective March 1.

Orlando K. Morgan, who has been appointed chief engineer of the Carolina, Clinchfield & Ohio, as noted in the *Railway Age* of March 5 (page 738), was until recently engineer in charge of the same road. Mr. Morgan was born on January 27, 1870 at Alliance, Ohio. He graduated from the high school at Carrollton, Ohio. In 1888 he began railroad work as rodman for the Co-shoction & Southern, now part of the Wheeling & Lake Erie. Soon afterwards he became transitman. From 1889 until 1890 he was draftsman for the Wrought Iron Bridge Company in Canton, Ohio. In 1890 he went to the Norfolk & Western as draftsman and assistant engineer, which position he retained until 1893, when he became assistant engineer of the Boston, Revere Beach & Lynn. He went to Brockton, Mass., in 1895, as city draftsman and held that position until 1896, when he was appointed assistant engineer of the Boston & Maine. In 1900 he became engineer for the board of sewer commissioners of Wakefield, Mass. He was appointed assistant engineer of the Massachusetts Electric Railways, with headquarters at Boston, Mass., in 1904 and remained with that company until 1905, when he received his appointment with the Carolina, Clinchfield & Ohio as chief draftsman. He subsequently held the positions respectively of office engineer, engineer maintenance of way and engineer in charge.



O. K. Morgan

Purchasing and Stores

L. V. Guild has been appointed purchasing agent of the Union Pacific, succeeding **G. H. Robinson**, transferred, effective April 1.

Special

R. H. Dwyer, trainmaster on the Missouri Pacific at Alexandria, La., has been promoted to superintendent of safety, with headquarters at St. Louis, Mo., succeeding M. McKernan, who has been assigned to other duties. The promotion is effective April 1.

Railroad Administration

M. J. Wise has been appointed manager of the department of materials and supplies, Division of Liquidation Claims, of the United States Railroad Administration, with office at Washington. **J. H. Lauderdale** has been appointed assistant manager, and **H. R. Condon** and **J. A. Turner**, assistants to the manager.

Obituary

George Ziegler, secretary of the Philadelphia & Reading, died suddenly at his home near New Hope, Pa., on April 5.

W. C. F. Rechenback, paymaster of the Atchison, Topeka & Santa Fe, died March 24 at Topeka, Kan., at the age of 75.

R. F. Kelley, traffic manager of the Wheeling & Lake Erie, died in Cleveland, Ohio, on March 24 after an illness of six months.

Nicholas J. O'Brien, superintendent on the Kansas City, Mexico & Orient, with headquarters at San Angelo, Tex., died at Wichita, Kan., on March 28.